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ABSTRACT

This study investigated graduate students' perceptions of ideal and actual instructor behavior, the match between ideal and actual behavior, and relations of these variables to student and course characteristics. A review of over 300 psychological and educational articles identified four basic dimensions of leader and teacher behavior: Consideration, Interaction Facilitation, Motivation, and Work Facilitation. These were used in constructing the Instructor Behavior Description Questionnaire (IBDQ), which was administered to 137 graduate students in diverse classes. Instructors responded to a questionnaire describing the degree of student involvement and responsibility in their classes. Seven weeks later, student descriptions of ideal and actual instructor behavior were collected together with responses to six course assessment items. It was concluded that the four dimensions listed above are appropriate to describe instructor behavior, and that the IBDQ is a reliable and valid instrument that can be used across different subject areas to compare instruction. Course assessment scores were highly correlated with actual instructor behavior on the Work Facilitation dimension, while satisfaction scores on the Interaction Facilitation and Consideration dimensions were significantly correlated with student involvement practices. Among student characteristics, only sex and need for dependence were correlated with descriptions of ideal instructor behavior. (Author/JR)

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DEVELOPMENT OF THE INSTRUCTOR BEHAVIOR DESCRIPTION QUESTIONNAIRE TO MEASURE GRADUATE STUDENT SATISFACTION FROM PERCEPTIONS OF IDEAL AND ACTUAL INSTRUCTOR BEHAVIOR

By

June Anthea Mitchelmore, Ph.D.

The Ohio State University, 1973

Professor Robert W. Howe, Advisor

This study investigated graduate students' perceptions of ideal and actual instructor behavior, the match between ideal and actual behavior, and relations of these variables to student and course characteristics.

A review of over 300 psychological and educational articles identified four basic dimensions of leader and teacher behavior: Consideration, Interaction Facilitation, Motivation, and Work Facilitation. These were used in constructing the Instructor Behavior Description Questionnaire (IBDQ). Responses to the 54 items of the IBDQ were on a 5-point importance scale plus an "irrelevant" category for ideal behavior, and on a corresponding 5-point frequency scale for actual behavior.

Subjects were 137 graduate students in twelve classes at Ohio State University from Psychology, Educational Special Services, Physics, Science Education, English, and Humanities Education. Initial class sizes ranged from 8 to 25. At the start of the first class meeting in Spring Quarter, 1973, students used the IBDQ to describe ideal instructor behavior, and data on various student characteristics were collected: Need for dependence, years of graduate study, sex, freedom in choosing the course, previous courses with the instructor, and age. Instructors responded to a multiple-choice 7-item questionnaire describing the degree of student involvement and responsibility in their classes. Seven weeks later, student descriptions of ideal and actual instructor behavior were collected together with responses to six course assessment items.

A factor analysis showed that four factors accounted for 37% of the variance in actual instructor behavior descriptions. The factors were similar to those found in a pilot study with 267 freshman psychology students, and also to the a priori dimensions. The 27 best loading items were used to define four dimensions. Dimension scores were computed as the mean response to the items on each dimension, omitting "irrelevant" responses. Satisfaction scores were computed as the percentage of matches on each dimension omitting "irrelevant", a match being a difference of not more than one scale point on responses to corresponding items of ideal and actual behavior.

Conclusions:

1. Four dimensions were found appropriate to describe instructor behavior: Consideration--is friendly, increases students' sense of personal worth; Interaction Facilitation--facilitates discussion and joint planning; Motivation--encourages acceptance of learning goals; and Work Facilitation--plans effective presentations, defines roles, provides resources. These dimensions may be basic dimensions of group interaction, and trial versions of the IBDQ for use at the elementary, secondary, and administrative levels are included in the appendices.

2. The IBDQ is a reliable and valid instrument that can be used across different subject areas to compare instruction. Instructors are not judged on items considered "irrelevant" by their students. Actual dimension scores had reliabilities from .80 to .89, and were significantly correlated with instructor descriptions of student involvement.

3. Course assessment scores were very highly correlated with actual instructor behavior on the Work Facilitation dimension. Satisfaction scores on the Interaction Facilitation and Consideration dimensions were significantly correlated with student involvement practices. As assessment and satisfaction scores were not correlated, it is suggested that use of satisfaction scores would be a valuable addition in the evaluation of instruction.

4. Among student characteristics, only sex and need for dependence were correlated with descriptions of ideal instructor behavior.

5. Descriptions of ideal behavior appeared to be fairly stable over the seven week period.

6. There were significant differences between classes on each dimension of actual instructor behavior, but only on the Consideration dimension was there a significant difference in satisfaction scores.

7. The data suggests that graduate students chose areas with preferred amounts of interaction and work facilitation (which are largely subject related), and that students in different areas were equally good at this.

DEVELOPMENT OF THE INSTRUCTOR BEHAVIOR DESCRIPTION QUESTIONNAIRE TO MEASURE GRADUATE STUDENT SATISFACTION FROM PERCEPTIONS OF IDEAL AND ACTUAL INSTRUCTOR BEHAVIOR

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

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* * * * *

The Ohio State University
1973

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CHAPTER I

INTRODUCTION

Need for the Study

College students are increasingly being asked to provide "end of quarter" evaluations of their instructors. Such data can be used for the following purposes:

1. To provide feedback to instructors for improving teaching
2. To provide norms against which teaching effectiveness can be judged in determining pay and promotion
3. To provide students with information to guide them in course and instructor selection (Costin et al., 1971; Gage, 1961; Smock and Crooks, 1973).

The question of concern is, "Is the present data collected from students the most appropriate for the purposes for which it is used?" Especially at the graduate level, where it may be assumed that students would know their own preferred learning styles, it seems useful to collect from students not only descriptions of what the instructor does but also what the students feel he should do to best help them to learn. At the present time, the data collected are usually judged by an outsider as to whether they contribute to "effective" teaching; the student is rarely asked for his opinion. Yet there is literature to suggest that some students prefer, for example, a highly structured lecture situation while others prefer a more open, independent "student centered" situation. Where classes are smaller, and where students could be expected to know in what situation they learn best it seems appropriate to take account of individual differences in preferred or "ideal" instructor behavior as well as the observed or "actual" instructor behavior.

The collection of descriptions of ideal instructor behavior could increase the usefulness of evaluative data in the following ways.

Feedback to an instructor would be more meaningful if he received not only a description of how his students thought he behaved, but also a description of what they felt would be most appropriate for that course. If an instructor knew the students' ideals at the beginning of the quarter, he might adjust his teaching, for example by giving more time for student discussion or by giving open-ended assignments to some students. Alternatively, he might feel the students' ideals were too narrow and could try to influence the students to change them. End of quarter comparison of ideal and actual behavior could be used to indicate the "satisfaction" of his students with that mode of instruction.

Norms for teaching effectiveness could also be improved. The students would describe who they considered effective in satisfying their ideals. As ideals might differ from one department to another, and even within departments, the use of student ideals would allow sliding scale comparisons of instructors. An instructor would be judged "effective" as he fulfilled the ideals of students in his area in that particular subject. These ideals would be influenced by what was "expected" behavior for that area and subject. Comparisons could then be made between areas in a way more appropriate than is presently the case. The items to be used would deal with aspects of behavior on which important student differences would be expected.

Students could be provided with more information than is presently available. Instead of just being told that a course is "good" in some unspecified sense, they could be told, for example, that previous students preferring a discussion-centered course with a considerate instructor had rated Course A much higher than Course B in fulfilling their ideals. There would not be "excellent" and "poor" courses, but rather courses more suited to students preferring a straight lecture course and others more suited to students who were very independent and preferred a great deal of student involvement and exercise of initiative. This kind of approach to the use of student data would be less threatening to instructors, and would probably receive greater faculty support than the present methods of evaluation.

The above discussion raises several important questions. Four of these will be treated here, and others which give rise to the specific hypotheses to be tested in this study are given on p. 18. The four basic questions are as follows:

1. Is it appropriate to use students as judges of instructor behavior?
2. Is there support for the need to collect student descriptions of ideal instructor behavior?
3. Do models exist that could be used to relate ideal to actual instructor behavior?
4. Do instruments exist to collect student descriptions of a range of ideal instructor behaviors?

These questions will be discussed in turn.

Appropriateness of Using Students as Judges of Instructor Behavior

Four purposes of classroom description are:

1. To assess skill development
2. To tabulate interactions (as in Flanders, 1970)
3. To measure student involvement and satisfaction
4. To interpret teaching operations.

These purposes can be broadly grouped into low and high inference descriptions. The first two are low inference: The operations are readily observed and likely to be recorded similarly by different persons. The second two are high inference: They involve individual interpretations and are likely to be recorded differently by different persons. The discussion by Rosenshine and Furst (1971) is particularly useful on this distinction. The purpose of the classroom description determines who is most appropriate to make the observations.

Barrett (1966) has suggested that there are three criteria for deciding the appropriateness of a rater in a particular situation and for a particular purpose. He calls these observation, judgment and point of view. Observation refers to the opportunity a person has to make observations; judgment refers to skill in making decisions and recording them; and point of view is concerned with evaluating the appropriateness of goals.

On these criteria, it seems that for low inference descriptions outside observers (such as other instructors, department chairmen, and researchers) are well placed. They have more time to observe and tabulate the interactions, they have or can develop the necessary skills, and they can evaluate the results.

However, as the concern shifts to high inference descriptions, there is a stronger case for involving students. For high inference descriptions, students are well placed on observation, judgment, and point of view, as it is their individual interpretations that are needed. The student is intimately involved with teaching behavior because it directly or indirectly affects his learning. Considerate behavior to one student might be to be allowed to work independently, to another student it might be to be actively helped. The frequency with which considerate behavior on the part of an instructor occurs will thus differ from one student to another. The problem is further illustrated by the two studies below.

Touq, Feldhusen and Halstead (1973) used trained observers and undergraduate students to rate classroom interaction using a modified Flanders' Interaction Analysis system (Flanders, 1970). Significant agreement on ratings was found for only three categories: student talk-initiation, praising or encouraging, and lecturing. Students reported significantly more "accepts feelings" behaviors than the outside observers.

Similarly, in the University of Texas study reported by Veldman and Brophy (1973), no significant correlations were found between outside observers' ratings of "warmth" and student gains on the Metropolitan Achievement Test. Although there are several rival hypotheses for this finding (such as a curvilinear relationship), it might also be that, for example, some students were interpreting "smiles" as warm behavior while the outside observer was not.

In summary, as the behaviors become more a matter of personal interpretation and importance to the individual, it becomes more critical to involve the students who are ultimately affected by those behaviors. This is not to deny the shortcomings of relying entirely upon students (Coombs, 1964; Kerliner, 1971; Kossoff, 1971), nor the possible problems inherent in collecting data from students.

A problem most often mentioned is that of grades--whether an instructor can get "good" ratings simply by giving "good" grades. Costin et al. (1971) have reviewed the recent college literature. They found studies which showed no relationship between students' rating of instruction and their expected or actual grades, and also some showing positive correlations. The authors concluded:

> The fact that the positive correlations which were obtained between student ratings and grades were typically low weakens this claim as a serious argument against the validity of student ratings. The positive findings that do occur might better be viewed as a partial function of the better achieving student's greater interest and motivation, rather than as a mere contamination of the validity of the student ratings (p. 519).

Working at the graduate level, considering the greater homogeneity of ability, there is less likelihood of grades differentially affecting ratings.

The Need to Collect Student Ideals

It is assumed that students have individual preferences as to how they would like their instructor to behave, and that these preferences are related to preferred learning styles. Students are often asked to describe teacher behavior and they may have to make value judgments on how important the behaviors are to them; for example, Leeds (1950) and Gupta (1960) at the elementary level; Barnes (1967), Bybee (1973), Cogan (1958), Kochendorfer (1967) and

Reed (1962) at the secondary level; and Coffman (1954), Cosgrove (1959), Costin (1971), Fletcher (1972), Isaacson et al. (1964) and Remmers (1963) at the college level. But less often are students asked to record their descriptions of ideal teacher behavior (Best, 1970; Brown, 1972; Hall, 1970; Levinthal et al., 1971; Sagness, 1970; Sanders and Lynch, 1973).

And yet several writers recognize the importance of students' ideals. McKeachie et al. (1971) have described the problem as follows:

> Students come to a class with many different personal objectives for that class. Some of these objectives may coincide with those of the instructor, but the overlap between instructor and student goals or between the goals of differing students is certainly far from perfect (p. 444).

Levinthal et al. (1971) have suggested that the information yielded by the analysis of student responses to teacher performance instruments has been insufficient because of the failure to identify the referent (or ideal) by which the students judge instruction. Sanders and Lynch (1973) have said that present evaluative data are inadequate because individual differences in student expectations are not assessed, testimonials about teaching performance based on student surveys have undefined reference points and ratings of teacher performance are not comparable across teachers or across classes taught by one instructor.

Discrepancy and Satisfaction Models

In discussing students' ideals, the model suggested by Yukl for workgroups (1971) may be adapted. He has suggested that the members in the group under consideration (in this case, students) have a set of expectations for the leader of the group (in this case, the teacher). These expectations or ideals are formed as an interaction between the student personality and the particular situation, that is to say, the student's description of ideal teacher behavior is likely to change from one situation to another. The student then observes the actual teacher behavior, and the similarity between ideal behavior and actual behavior leads to satisfaction or dissatisfaction with the teacher (Fig. 1).

The model shown in Fig. 1 is an example of an expectancy or discrepancy model (House, 1971; Locke, 1969; Porter, 1962; Rosen & Rosen, 1955; Schaffer, 1953; Wanous & Lawler, 1972; Yukl, 1971). These models stress the importance of the expectations and ideals of the subordinates. The difference between ideal and actual is described as a "discrepancy"; the less the discrepancy, the greater the satisfaction.

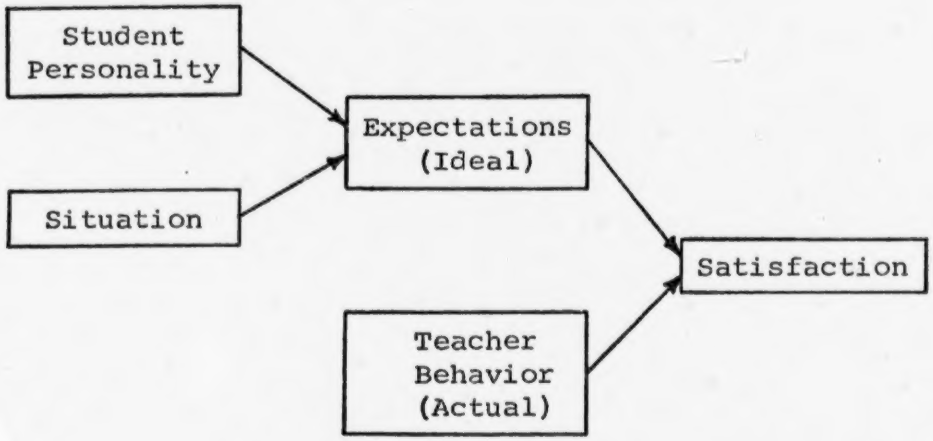

Student Personality
Situation
Expectations (Ideal)
Teacher Behavior (Actual)
Satisfaction

Fig. 1. Satisfaction Model

An effective leader would need to take subordinates' ideals into account. A basic problem is that we have rarely asked students to describe their ideals of instructor behavior, and so we have not been able to compute "student satisfaction" with a particular instructor.

Current Instruments

College evaluation instruments have received considerable criticism, some of which is justified. In the present case, no instruments have been found that could be used to describe a range of ideal instructor behavior in a variety of settings. Three problems are discussed below:

1. Many evaluation instruments are atheoretical
2. Instruments cannot be used across different situations
3. Not enough is known about descriptions of ideal instructor behavior.

Many Instruments are Atheoretical

Many evaluation instruments are a collection of items without any underlying theory or any attempt to sample from the wealth of instructor behavior. As a result, college evaluation forms often do not show clearly defined groups of teacher behaviors. This might be because of a "halo effect" or because the items cover too narrow a range of instructor behaviors.

A "halo effect" occurs when a particular rater tends to rate the person observed similarly on all traits. The effect has been described by Aleamoni (1973), Brown (1968), Campbell et al. (1970), Guilford (1954), and Remmers (1963). The problem in college evaluation is described by Widlak et al. (1973) as follows.

> Many researchers and users of course and instructor rating scales suspect that the halo effect is a prominent influence. The halo effect is usually construed to be the result of certain perceptual and attitudinal processes whereby a few cues are generalized into a global impression (p. 1).

An alternative suggestion is that the behaviors listed on the evaluation forms do not cover more than a narrow group of instructor behaviors. When Isaacson et al. (1964) isolated six factors of instructor behavior, they had this to say about one of the factors:

> The number and types of item which cluster together to form Factor I indicate that this factor represents what is often called a halo effect in student evaluations. In fact, we found that some shorter student-evaluation forms used in our department were comprised solely of items on this factor (p. 349).

The halo effect recognized in other evaluation forms may thus be a reflection of the way the items of behavior were chosen; they represented only the narrow range of instructor behavior given by Factor I of Isaacson et al. Support for this suggestion has been found in college studies that have instead started from a large pool of items for describing instructor behavior. In these cases (Baird, 1971; Cosgrove, 1959; Costin, 1968; Deshpande et al., 1970; Gibb, 1955; Hall, 1970; Isaacson et al., 1964), three or more factors were found.

A great deal of work has been done to identify factors or dimensions of leader behavior. It is suggested that a review of this literature would help in developing instruments that more closely reflect the totality of instructor behavior. Such instruments would then have a basis in a theory of behavior.

Instruments Cannot be Used Across Situations

There is a considerable literature that suggests that different students and students in different courses prefer different kinds of instructors (Butcher, 1968; McLeish, 1966; Powell, 1970b). It is necessary to design instruments to take these differences into account and to isolate their effect. Students must have an opportunity to say which behaviors are important and which are not and which they consider relevant and which irrelevant for the description of an ideal instructor.

The above stress on student differences and differences between courses is similar to the situational approach to leadership studies in psychology, which has long recognized the importance of the situation in determining which behaviors of a leader will produce effective outcomes for the group (p. 77). The "situation" as interpreted broadly would include the personality and style of the leader, group member differences, types of task, and organizational and environmental pressures (p. 86). A need exists for a review of this literature--both approaches to leader effectiveness and also descriptions of dimensions of leader behavior. This literature should be examined and used in the development of a new teacher behavior description questionnaire for the college level.

Not Enough is Known about Descriptions of Ideal Instructor Behavior

If students have different "ideals" of how they would like their instructor to behave, and the same student has different "ideals" for different courses, one might also ask if "ideals" change over time. This is a critical question if we wish to improve the "satisfaction" between student ideals and actual instructor behavior. Do student ideals change during the time of contact with an instructor and interaction with other class members? If ideals do change, then students may come to like different kinds of instructor behavior. An instrument designed to collect student descriptions of ideal instructor behavior could be used to investigate this problem.

Summary

From the foregoing discussion, the following needs have been identified.

1. There is a need to involve students in the description of teacher behavior. This is especially necessary when we are concerned with high inference behaviors and when the importance of the behavior may be dependent upon differing student ideals.

2. There is a need to develop an instrument for the college level which would cover more of what is known about the dimensions of teacher behavior and would allow the students to describe their "ideal" instructor.

3. Differences in descriptions of "ideal" instructor may be related to individual student differences. This relation needs to be examined.

4. Another need is to examine how stable students' ideals are, whether they are influenced by actual instructor behavior, and what course structure variables might produce most change.

5. Finally, there is a need to find how student satisfaction (as in Fig. 1) compares with traditional course assessment and descriptions of actual instructor behavior.

Statement of the Problem

The problems for this study are as follows:

1. To develop and validate an instructor behavior description questionnaire

2. To find correlates of, and changes in, student descriptions of ideal instructor behavior

3. To examine the distribution of ideal instructor behavior descriptions, course assessments, and satisfaction.

Instructor Behavior Description Questionnaire

The first problem is to develop and validate an instructor behavior description questionnaire for the college level which will:

1. Allow the description of dimensions of teacher behavior identified from the literature

2. Allow students to describe their ideal instructor behavior

3. Make use of an irrelevant category to take account of student preferences

4. Allow comparison of ideal and actual instructor behavior in order to compute student satisfaction with instruction.

Correlates of, and Changes in, Ideal Behavior Descriptions

The second problem is to find correlates of student descriptions of ideal instructor behavior and to investigate how descriptions of ideal behavior change. Specifically:

1. What student characteristics are correlated with scores on the various dimensions of ideal instructor behavior?

2. Do student descriptions of ideal instructor behavior change over time?

3. What course structure variables are related to changes in students' ideals?

Distribution of Ideal Behavior, Assessment, and Satisfaction

The third problem is to find how student differences in ideal instructor descriptions, assessment, and satisfaction are distributed. Specifically:

1. Are there differences between classes on descriptions of ideal instructor behavior?

2. How do course assessment and satisfaction relate to each other, and what differences are there between classes?

3. What student characteristics and course structure variables are correlated with a "good" assessment and high overall satisfaction?

An overview of the procedure used to investigate these problems will be found on pp. 25-26.

Hypotheses

Hypothesis 1. There are significant correlations between selected student characteristics and dimension scores for ideal instructor behavior.

Hypothesis 2. There are significant class changes in descriptions of ideal instructor behavior from pretest to posttest.

Hypothesis 3. There are significant correlations between course structure variables and class changes in descriptions of ideal instructor behavior from pretest to posttest.

Hypothesis 4. There are significant differences between classes in pretest descriptions of ideal instructor behavior.

Hypothesis 5. There are significant differences between classes on course assessment and on satisfaction scores.

Hypothesis 6. There are significant correlations between course assessment and satisfaction scores, and selected student characteristics and course structure variables.

Definitions

Ideal Instructor Behavior is the behavior which a student would prefer an instructor to exhibit in a particular situation.

Actual Instructor Behavior is the behavior which a student perceives the instructor to exhibit in that situation.

A Dimension is a recognizable group of behaviors. Dimensions of instructor behavior used in the main study are defined below.

> Interaction Facilitation: Behavior that facilitates discussion between students and between students and teachers and which involves students in joint planning of learning goals.
>
> Work Facilitation: Behavior that structures the situation for effective learning by such activities as effective presentation, planning of procedures, definition of roles, and providing resources such as materials and expert knowledge.
>
> Consideration: Behavior that is friendly and fair and tends to increase the student's sense of personal worth.
>
> Motivation: Behavior that gains student acceptance of learning goals, by taking a personal interest in students and by encouraging extra effort through looking above and beyond the immediate work.

The Instructor Behavior Description Questionnaire (IBDQ) is the instrument developed in this study to measure the dimensions of ideal and actual instructor behavior. There are two forms: The Trial Form (Appendix A) was used in the Pilot Study with Psychology 100 undergraduate students. The Final Form (Appendices D and E) was used in the Main Study with twelve graduate classes.

Subject areas are the departments and faculties from which the sample of graduate classes used in the main study was chosen (p. 157).

Pretest and Posttest: The final form of the IBDQ was administered on two occasions in the main study; the first is referred to as the pretest, and the second as the posttest.

Number of Items Considered Relevant is the number of items on the IBDQ for each dimension of ideal instructor behavior that a student feels are relevant for the description of an ideal instructor (p. 173).

Dimension Scores are the mean responses to the items on each dimension of the IBDQ (p. 173). For ideal instructor behavior, there are two such scores (pretest and posttest dimension scores) and the mean is calculated from the number of items considered relevant. For actual instructor behavior, there is only one score, calculated from the posttest.

Satisfaction is the degree to which a student's perceptions of ideal instructor behavior match actual behavior. Satisfaction scores for each dimension, and an overall satisfaction score, are defined operationally from responses to the IBDQ (p. 176).

Course Assessment is the overall student assessment of the course and instructor (p. 173). A course assessment score is derived from responses to items in Appendix E.

Student Characteristics are need for dependence and student biographical variables. Need for Dependence is the degree of reliance upon others and preference for being told what to do (p. 173). It is defined operationally from responses to items in Appendix D. Student Biographical Variables are as follows: Year of Study is the number of years of graduate study that a student has completed. Sex is either male or female. Freedom of Choice is the perceived degree of freedom a student had in signing up for the course. Number of Courses is the number of previous courses which a student has had with that instructor. Age Group is the age range into which a student's age falls. Response choices are shown in Appendix D.

Course Structure Variables are based on the instructor's description of how he conducted the course (p. 177). They are restricted to the intended method of presentation, student involvement in choice of topics, preparation of classroom material, prior structuring of topics, means of assessment, feedback on written work, and method of course evaluation (Appendices H and I).

Assumptions and Limitations

Delimitations

Data for the main study were collected from a non-random sample of twelve graduate classes within six subject areas of The Ohio State University. The courses were offered for three to five credits in Spring Quarter 1973 and at the beginning of the quarter had enrollments of from eight to twenty-five students.

All classes were administered using a standard read-out format of instructions. Class time was used for completing the instruments.

Assumptions

It is assumed that the students responded to the IBDQ with integrity, that is, they were not faking good results or responding in a random manner.

It is assumed that students used the "irrelevant" category correctly, that is, that blanks left on the descriptions of ideal instructor behavior referred to items considered irrelevant.

It is assumed that items and instruments designed to measure need for dependence, student biographical variables, course assessment, and course structure variables gave dependable measures of these variables.

It is assumed that as standard procedure was adopted in distributing and collecting data no systematic variance occurred from this source.

Limitations

Any findings cannot be generalized beyond Ohio State University.

Any findings cannot be generalized beyond graduate classes.

Any findings cannot be generalized beyond the subject areas.

Any findings cannot be generalized beyond the classes in the sample.

These last two limitations might be partially removed in as far as there are differences between the classes which are likely to be representative of graduate classes in general. It might also be possible to generalize results to other classes of similar size, but not to larger classes.

No generalizations would be possible if the same procedure of data collection were not followed.

Overview

Chapter II describes the review of the literature related to the search for effective leaders and teachers. As a result of this review, four basic dimensions of leader behavior are identified. The need to take account of individual student differences in descriptions of ideal instructor behavior is also documented.

The beginning of Chapter III describes how the four basic dimensions of leader behavior were translated into comparable instructor behaviors, how the trial form of the IBDQ was distributed in the pilot study to classes of Psychology 100 undergraduate students at Ohio State University, and how results from an analysis of the responses were used as the basis for modifying and developing the final form of the instrument.

The remainder of Chapter III describes the use of the final form of the IBDQ on two occasions during Spring Quarter 1973 with twelve graduate classes from Ohio State University. Descriptions of ideal instructor behavior were collected on both occasions, and actual instructor behavior on the second occasion only. Variables expected to correlate with these descriptions were also measured: need for dependence, student biographical variables, course assessment, and course structure variables.

Chapters III and IV describe the procedures used to test the hypotheses, and the results obtained. Correlational analyses are performed to find whether various student characteristics were related to differences in description of ideal instructor behavior. Changes in descriptions of ideal instructor behavior, measured in three ways, are tested using analysis of variance, and a correlational analysis is used to investigate what course structure variables were correlated with these changes.

Multivariate and univariate analyses of variance and covariance are used to investigate class differences in pretest descriptions of ideal instructor behavior and the relation between pretest and posttest ideal instructor behavior descriptions. Multivariate and univariate analyses of variance and correlational analyses are used to compare satisfaction scores derived from the IBDQ with those obtained in a traditional way from actual instructor descriptions and course assessment.

The results of the study are discussed in the light of the literature in Chapter V, and new areas of investigation are suggested.

CHAPTER II

REVIEW OF THE LITERATURE

This review is concerned with the search for effective leaders and effective teachers. It shows that any associations between traits and behaviors and desired outcomes are not direct, but that situational variables such as individual group member differences are also involved.

The basic question of concern is, "How can we predict that a certain person will be an effective leader or an effective teacher?" By "effective" is meant that he will lead his group to the attainment of some specified goal (some task performance, cognitive or affective learning outcome, etc.). What variables are important in determining effective leadership or teaching? Will a person be effective solely on the basis of special native endowments (the great man theory of leadership), or particular traits or personality (the traits approach to leadership effectiveness)? Or do we need to observe his actual behavior as well as know about his attitudes and values (the behavioral approach)? What dimensions of behavior can be identified in this way? Is it true that an effective leader or teacher in one situation will be equally effective in another, or do we have to consider other variables in the situation (the situational approach)? If the situation is important then how do we identify those variables that influence the probability of a given leader becoming effective?

All of these questions have been studied extensively. Sources on leadership that have been found especially useful are Blum and Naylor (1968), Bowers and Seashore (1966, 1967) Cartwright and Zander (1953), Gibb (1969), Hollander and Julian (1969), Kolb, Rubin, and McIntyre (1971), and Yukl (1971). Sources on teaching are Gage (1963), Getzels and Jackson (1963), McKeachie (1963), Ryans (1963a), and Sears and Hilgard (1964). The parallel treatment of psychological and educational literature will illuminate what is meant by an "effective teacher" and show what variables are operative in a particular situation.

The chapter is arranged as follows:

1. The great man theory
2. The traits approach
3. The behavioral approach
4. The situational approach.

The Great Man Theory--"Leaders are Born, not Made."

This theory is at least as old as Plato's Republic; it was summarized by Cooper and McGaugh (1963) as follows:

> In general, the "great man" theory holds that particular individuals are natively endowed with characteristics that cause them to stand out from the many and permit them to guide, direct, and lead the majority (p. 247).

A similar description was given by Bavelas (1960):

> Early notions about leadership dealt with it almost entirely in terms of personal abilities. Leadership was explicitly associated with special powers (p. 491).

Some support for the great man theory was described by Borgatta, Couch, and Bales (1954). "Great Men" were experimental subjects who were identified as leaders by other group members. Groups with great men in them were found to have higher consensus on a problem task, lower rates of expressed tension, and friendlier atmospheres.

In education, we sometimes use the tenet, "Teachers are born, not made," which reflects the same kind of attitude. Questions that have been raised about the great man theory are whether all the qualities of leadership can be possessed by one man (Bales and Slater, 1955; Etzioni, 1965) and whether a person can operate effectively without taking the situation into account (Hamphill, 1949b). The question of "the situation" will be discussed later (p. 77), but if we put on one side supernatural powers, it might still be possible to identify certain traits or personality attributes associated with effective leadership or teaching.

The Traits Approach--"Effective Leaders and Teachers can be Distinguished by Certain Traits"

This approach was described by Bavelas (1960) as follows:

> Leadership is still generally thought of in terms of personal abilities, but now the assumption is made that the abilities in question are the same as those possessed by all normal persons; individuals who become leaders are merely presumed to have them to a greater degree (p. 492).

In the following discussion, traits and personality attributes will be treated as similar to each other. It is, however, recognized that "traits" are general characteristics of an individual, such as dependability and it may not be possible to identify them by filling out a personality inventory. Personality attributes can be measured by inventories.

In this section, we are concerned with a search for traits and personality attributes that have been found associated with effective leadership and teaching. This search has utilized opinions from experts, and comparisons of criterion groups and persons at different job levels. Representative studies of each kind are given below, as also are results from previous reviews of the literature.

Use of Expert Opinions in Identifying Traits

In this kind of study, people are asked for their opinions upon the traits and personality attributes which they think are necessary for effective leaders or teachers in a particular setting. Some representative studies are described below.

Opinions from experts were sought by Jurgensen (1966), who asked 210 personnel men and executives to choose the 12 adjectives most and least descriptive of the type of person likely to succeed as a key executive in top management. The adjectives chosen as most descriptive were decisive, aggressive, self-starting, productive, well-informed, determined, energetic, creative, intelligent, responsible, enterprising, and clear-thinking; and as least descriptive were amiable, conforming, neat, reserved, agreeable, conservative, kindly, mannerly, cheerful, formal, courteous, and modest.

On the personality and attitudes of teachers, Barth (1971) reported agreement by "open" educators in the U.K. and the U.S.A. on the values and attitudes that would be required of teachers who wanted to become effective in an open classroom. Kerlinger (1964) found less consensus in his attempt to identify the attributes of a "good" teacher. A Q-sort of adjectives by 38 judges resulted in the identification of three different kinds of effective teachers. The three most highly chosen characteristics of each group were intelligent, imaginative, and insightful; conscientious, moral, and religious; and enthusiastic, inquisitive, and decisive. These profiles were described by different kinds of people and it seems likely that the "definition" of effective leader or teacher will vary depending on which group of people you ask, and on what is in educational vogue at that time.

Comparison of Criterion Groups in Identifying Traits

Another approach is to compare the personality characteristics of persons who have previously been judged "effective" and "ineffective" or to look at the characteristics of persons in different kinds of jobs to see if consistent differences between them can be identified. These differences could then be used to describe the personality characteristics of effective leaders or teachers in a particular job. A few representative studies of this kind are described.

Leader Traits and Personality

This approach has been used by Randle (1956) who studied personality traits of 1427 executives and found the following traits significantly more frequent in those judged promotable than in those judged inadequate: present performance, drive, intellectual ability, leadership, administrative ability, initiative, motivation, and creativeness. Similar studies by Katz and Kahn (1966), Ghiselli (1959), Porter (1961), Porter and Henry (1964), and Porter and Lawler (1968) concentrated on finding traits which distinguished between high-level, middle-level, and low-level managers. High-level managers were found to be superior in intelligence and supervisory ability, to show more initiative and self assurance, and to be more aggressive, dominant, independent, original, forceful, and imaginative than low-level managers.

Teacher Traits and Personality

Ryans (1960) used the same kind of methodology for teachers. In the Teacher Characteristics Study, he was able to identify high scoring teachers (more than one standard deviation above the mean) and low scoring teachers (more than one standard deviation below the mean) on the friendly versus aloof, systematic versus slipshod, and stimulating versus dull dimensions of teacher behavior. He found differences in personality between these two groups. The "high" teachers as compared to the "low" teachers tended to be more generous toward others, possessed stronger interest in reading, literary affairs and arts in general, participated more in social groups, enjoyed pupil relationships more, preferred nondirective (permissive) classroom procedures and were superior in verbal intelligence and emotional adjustment.

Personality differences between different kinds of teachers have also been demonstrated by Kearney and Rocchio (1955). They found that elementary school teachers (N = 587) with self-contained classrooms scored significantly higher on the Minnesota Teacher Attitude Inventory (MTAI) than specialist teachers (N = 52).

There do thus seem to be some personality differences between different groups of leaders and teachers. But the problem with this kind of research is in deciding on the original separation of "effective" and "ineffective" leaders or teachers. This problem will be mentioned again later (p. 38-40).

Previous Reviews of the Literature

Several reviews have been concerned with identifying consistent correlations between certain traits or personality attributes and effective leadership or teaching. Some representative studies are described.

Leader Traits and Personality

Positive associations of the following traits and personality characteristics with high leadership status have been documented: intelligence, adjustment, extroversion, dominance, masculinity, and interpersonal sensitivity (Mann, 1959); self confidence, height, appearance, friendliness, energy and intelligence (Berelson & Steiner, 1964); brightness, psychological adjustment, tendency to display good judgment, and high interaction (Bavelas, 1960); intelligence, scholarship, dependability and responsibility, activity and social participation, and socioeconomic status (Stogdill, 1948). Fleishman and Peters (1962) found a negative correlation between conformity and effectiveness.

However, considerable discrepancies have also been found. For example, Bird (1940) in a review of 20 different investigations found mention of 79 different traits. Less than half of these traits appeared on more than one of the twenty lists, only intelligence was included in as many as ten of the twenty lists, and only about 5% of the traits were common to four or more investigations. There was also a good deal of contradiction; some lists included adaptability, tactfulness, mildness, and suggestibility, whereas aggressiveness, ascendence, and decisiveness appeared on others.

Some reviewers of the leadership literature are very pessimistic about the usefulness of personality measures (Havelock, 1969; Korman, 1968). The following quotations are from Korman (1968):

> Intelligence, as measured typically by verbal ability tests, is a fair predictor of first-line supervisory performance but not of higher-level managerial performance. ... Objective personality inventories and "leadership ability" tests have generally not shown predictive validity, ... "Judgmental" prediction methods, as exemplified

> particularly by executive assessment procedures and peer ratings, are generally better predictors than psychometric procedures, ... (p. 319)

Teacher Traits and Personality

Getzels and Jackson (1963) have reviewed more than 150 articles on correlations between effective teaching and scores on the MTAI, the Minnesota Multiphasic Personality Inventory (MMPI), the Guilford-Zimmermann Temperament Survey, the Kuder Preference Record, Vocational and the California F Scale. They found almost no correlations which did not have some exceptions. The same conclusion can be drawn from two other reviews that include teacher personality studies (Blosser and Howe, 1969; Bruce, 1968).

However, positive associations between the following traits and effective teaching have been demonstrated: high scores on the K scale of the MMPI (Gowan, 1955); superior personal organization, good adjustment and reasoning, capacity to relate to others, and less aggressive responses (Symonds and Dudek, 1956); and classification in Belief System 4 as measured by responses to This I Believe and the Conceptual Systems Test (Harvey, 1970; Harvey and Hoffmeister, 1971; Harvey et al., 1966).

Personality correlates of effective instructor behavior have been described by Isaacson et al. (1963). They also carried out research on 33 graduate instructors over a four semester period. Peer group nominations, self descriptions, and the Catell 16 Personality Factor questionnaire were used together with student ratings of overall effectiveness. On the results of the correlations, they concluded:

> We have no hesitancy in saying that a college teacher's possession of agreeableness, emotional stability, and enthusiasm, as well as high cultural attainment, augers well for him (p. 116).

Summary of the Traits Approach

It is now possible to draw together the research concerning traits and personality characteristics, and to examine it in the light of various criticisms. Blum and Naylor (1968), Bavelas (1960), and Gage (1963) have discussed the difficulties involved in the traits approach to leadership and teaching. There is first the problem of defining and agreeing upon traits (there are nearly as many traits as adjectives), and the difficulty of measuring the same traits by different personality tests or ratings of judges. The low consistency of reports reviewed by Bird (1940) might be partly accounted for on these grounds. The later work by Porter (1961) and Porter and Henry (1964) may have used more clearly defined and measured constructs. Another criticism is that the traits approach does not provide insight into the basic dynamics of leadership or teaching.

Bavelas (1960) summarized what might be the most serious criticism:

> ... The trait approach has in recent years been subjected to increasing criticism. A common objection is that the results are obtained by a method that requires an initial separation of people into "leaders" and "non-leaders" or "good leaders" and "not-so-good leaders." The validity of the distinguishing traits that come out of such work, the argument goes, can only be as good as the validity of the preliminary grouping... (p. 492)

In addition to these problems is the fact that the traits approach does not take the situation into account. The contradictory findings of correlational studies can be explained on this basis--that some leader or teacher personality attributes are important in some situations, neutral in others, and negatively correlated with effectiveness in others. Stogdill (1948) in his review of the leadership literature concluded that:

> The findings suggest that leadership is not a matter of passive status, or of the mere possession of some combination of traits (p. 66).

A similar sentiment was expressed by Hemphill (1949b) at the conclusion of his survey of leader behavior in 500 separate groups:

> ... there are no absolute leaders, since successful leadership must always take into account the specific requirements imposed by the nature of the group which is to be led, ... (p. 225)

With these conclusions, it seems that traits and personality studies may give us a gross idea as to who might be effective, but that it is how the person actually behaves in a particular situation which is of critical importance.

The Behavioral Approach--"Effective Leaders and Teachers Can Be Distinguished By How They Behave"

Instead of depending solely on personality traits, this approach is concerned with observations of actual leader and teacher behavior and with the search for correlations between these and satisfaction, productivity, or specified learning outcomes.

Biddle (1969), Solomon (1966), Medley and Mitzel (1963), Isaacson et al. (1964), Ryans (1963b), and Gage (1963) have all pointed out a need for descriptions of teacher and instructor behavior. Gage (1961) considered that before either experimental research (for example, by changing the teaching method and finding the effect on dependent variables) or correlational research could be undertaken, more process descriptive work was needed to identify the relevant aspects and dimensions of teacher behavior. He said, "Teachers' traits need to be closely studied for what they mean in classroom behavior, ... (p. 21)." A step in this direction was the development of the Presage, Process, Product Model (Mitzel, 1960). Presage criteria are traits such as "warmth" which are expressed in some behavioral acts (process) which are then linked to educational outcomes (product).

Advantages and disadvantages of teaching methods such as "classroom discourse," "lecture," "discussion," "recitation," and "discovery" have been described by Gagné (1970), McKeachie (1963), and Powell (1970a). Gage (1969), however, considers these methods to be too poorly defined; there is a need to describe the actual teacher behaviors that occur so that meaningful comparisons can be made between different studies.

The behaviors of many different kinds of leaders and teachers have been described with a variety of instruments. In the section that follows, each group is considered in turn, and correlations of the behaviors with effective outcomes are documented. This is followed by a discussion and tabulation of similarities between the dimensions of behavior identified, and a summary of the behavioral approach. The plan is as follows:

1. Leader behavior
2. Elementary and secondary school teacher behavior
3. College instructor behavior
4. Supervisor and principal behavior
5. Dimensions of leader and teacher behavior
6. Summary of the behavioral approach.

Leader Behavior

Instruments Used for Describing Leader Behavior

In 1945, the Bureau for Business Research at Ohio State University began work on developing the Leader Behavior Description Questionnaire (LBDQ). From an original pool of over 1,790 items, 150 were retained and assigned to nine or ten a priori dimensions of behavior (Stogdill & Coons, 1957). Various forms and adaptations of the questionnaire were used with educational groups (Hemphill & Coons, 1957), air force crews (Halpin and Winer, 1957) and industrial supervisors (Fleishman, 1957a). In these studies, the questionnaires were given to the various subordinates who described the behaviors of their leaders. The results of the factor analyses by Halpin and Winer (1957) have been the most widely used and will be discussed here.

Four factors were identified of which two accounted for more than 80% of the variance. These were "consideration"--behavior indicative of friendship, mutual trust, respect, and warmth, and "initiating structure"--behavior that organizes and defines relationships or roles, and establishes well-defined patterns of organization, channels of communication, and ways of getting jobs done. A 40-item test (of which 30 items were scored) was developed and used by Halpin (1957b) with aircraft commanders and school superintendents. Since that time, the LBDQ and its descendents and modifications such as the Supervisory Behavior Description Questionnaire (Fleishman, 1957a) and the LBDQ Form XII (Stogdill, 1963) have been used for example with aircraft commanders (Halpin, 1957a), foremen in industry (Fleishman and Harris, 1962), corporation presidents (Stogdill, Cooke, and Day, 1963a), United States senators (Stogdill, Goode, and Day, 1963b), and presidents of labor unions (Stogdill, Goode, and Day, 1964). The reliability and validity of the forms has also been examined (Halpin, 1957b; Stogdill, 1969).

Correlations of Consideration and Initiating Structure with Effectiveness

Correlations between consideration or initiating structure and effective group outcomes have been investigated. Significant positive relations have been found between consideration and subordinate satisfaction (Halpin, 1957a; Halpin and Winer, 1957; Lowin et al., 1969; Likert, 1961). No significant relation was found between initiating structure and satisfaction by Halpin and Winer (1957), Lowin et al. (1969), and Likert (1961), but Halpin (1957a) reported a positive relation between initiating structure and superior ratings. Correlations of consideration and initiating structure to productivity are positive or insignificant. Korman (1966) summarized his review by saying:

> Studies of the Leader Behavior Description Questionnaire tend to show a slightly more consistent pattern of Consideration being related to effective performance positively and Initiating Structure negatively, but there is a great deal of inconsistency ... (p. 354)

Fleishman and Harris (1962), working with foremen in industry found that in general low consideration and high structure were associated with high grievances and high turnover. However, interactions were found: Grievances and turnover were lowest for groups with foremen showing medium to high consideration together with low structure, and high consideration foremen could increase structure with very little increase in grievances and no increase in turnover. House's literature review in this area (1971) documents many inconsistent findings. He considers it necessary to include situational variables to moderate the effect of the dimensions of leader behavior; there is no direct and ever-present relationship between consideration or initiating structure and satisfaction or performance.

Correlation of Participation with Effectiveness

A third dimension of leader behavior--"participation"--has often been included within "consideration." Yukl (1971) argues that the degree to which the leader allows subordinates to participate in the group's decision-making should be treated separately from consideration. There is an extensive literature (McCarrey, 1964; Scontrino, 1972; Vroom, 1959, 1965; Vroom and Mann, 1960) to suggest that persons prefer different amounts of participation. Yukl (1971) said:

> Inclusion of participation items in a consideration scale results in scores which are not comparable across persons unless first adjusted for differences in particpation preferences (p. 417).

Correlations of amount of participation with either satisfaction or productivity are even less easy to describe than those for consideration and initiating structure. Individual preferences (House, 1971; McCurdy and Eber, 1953, Vroom, 1956, 1959; Vroom and Mann, 1960), the importance of the decision to the subordinate (Gordon, 1955; Maier, 1965), and the subordinate's perception of a relation between participation, expectations and outcome (Scontrino, 1972) all play a part. The effect of participation cannot be explained solely on the basis of the leader's behavior. The characteristics of the group are important. This is discussed further under the situational approach (p. 77).

Elementary and Secondary School Teacher Behavior

A wide variety of instruments have been used to describe elementary and secondary school teacher behavior. Either outside observers or students are used to record the teacher's behavior which may be non-verbal (Galloway, 1962), low inference (Brophy and Evertson, 1973), or high inference (Evertson and Brophy, 1973). Some instruments employ a Likert 5-point scale from Strongly Agree to Strongly Disagree, while the Barrett-Lennard Inventory (1962) has three grades of Yes and three grades of No. Bipolar scales were used by Ryans (1960) and cumulated points from a 3-point scale by Leeds (1950) and Sagness (1970). Multiple choice responses were used by Brown (1972) and checklists of occurrences of particular behaviors by Medley and Mitzel (1958) and Flanders (1960, 1970). Q-sort technique has also been used (Bybee, 1973). Graphic rating scales and forced choice ratings employed at the college level do not seem to have been much used in the schools.

A difference is recognizable between instruments used to describe leader behavior and those used for teachers. The leader behavior questionnaires described here were based upon an extensive examination of leader behavior and the items assigned to a priori dimensions. However, in several teacher description questionnaires, only a part of teacher behavior was covered and there was less theoretical base.

Behaving Styles of Teachers

As a result of the observation above, there is much less agreement about dimensions of teacher behavior than about leader behavior. Ryans (1963a) has attempted to group teacher behavior studies, and Emmer and Peck (1973) have identified common factors in five classroom observation instruments. The problem is that several studies are concerned with only a few behaviors of the teachers. For example, studies concerned only with the consideration dimension are those of Aspy (1965) and Emmerling (1961), and that of Smith (1960) who investigated supportive, ignoring or neutral, and threatening or antagonistic behaviors. Other studies are mainly concerned with questioning techniques and direct and indirect classroom behavior (Adams and Biddle, 1970; Blosser, 1970, 1973; Flanders, 1960, 1970; Taba et al., 1966; Withall, 1949, 1951).

Correlations between Teacher Behavior and Effectiveness

Again a few representative studies are described. These are correlational studies relating teacher behaviors to supervisor ratings or learning outcomes.

Barr (1929), using supervisor judgment as the criterion of effectiveness, found that "good" teachers as compared to "poor" teachers more often used the interest appeal of the subject matter, problem setting and purposeful activity, penalties, and interest and experiences of the pupils.

Harvey et al. (1968) working with elementary school teachers, found that resourcefulness of teachers correlated positively with student cooperation, involvement, activity and achievement; and that punitiveness and dictatorialness correlated negatively with student cooperation, involvement, activity, achievement, and helpfulness.

Ryans (1961), summarizing the Teacher Characteristics Study, found that in elementary schools there was a high positive relation between observers' assessment of "productive pupil behavior" and teacher behavior that was understanding and friendly, organized and businesslike, and stimulating and original. In secondary schools, low positive relations were found, with a tendency for stimulating and original teacher behavior to show a higher correlation with productive pupil behavior than did the other teacher behaviors.

Cogan (1958) used students' reports of the amount of required and self-initiated work they performed for different teachers as dependent variables. Three dimensions of teacher behavior were investigated: inclusive (teacher as a cue for approach), preclusive (teacher as a cue for rejection), and conjunctive behavior (communication, classroom management, subject matter and demands). The relation between preclusive behavior and amount of student work was not clear, but there was a strong relation between inclusive and conjunctive behaviors of teachers and reported student performance.

From the results of a factor analysis, Soar (1966) suggested that teacher nonverbal affection is a positive correlate of pupil interest and a negative correlate of pupil hostility. Pupil hostility and teacher criticism were shown to be negatively correlated with pupil growth in arithmetic concepts and problems, while pupil hostility was in addition negatively correlated with vocabulary growth and growth in creativity.

A similar result was found by Sears (reported in Sears and Hilgard, 1964). Positive correlations were found between creativity and teachers' personal interest in the child's ideas accompanied by a high frequency of listening to the child. Other correlates of superior student achievement were frequency with which the teacher emphasized the expanding and amplifying of ideas and gave alternatives and possibilities rather than straightforward statements of fact.

These more personal interactions of the teacher and the child are considered by Rogers (1967) to be fundamental to the role of the facilitator of learning. Rogers (1957) began by defining the necessary and sufficient conditions of therapeutic personality change: genuinenesss, empathic understanding, and trust. These were used by Barrett-Lennard

(1962) as three of the five dimensions on his inventory to describe the therapist-client interaction. This inventory has since been used in the school setting (Emmerling, 1961; Aspy, 1965), and Rogers (1967) gives some evidence to show that a teacher high on these qualities has more positive evaluation from his students and his students have higher gains on standardized tests.

Using a sample of 38 teachers and over 1,000 students from 19 different schools, Reed (1962) examined the relations between teacher warmth (relaxing of interpersonal tension between teacher and pupil), demand (degree of expectations for high standard of performance), and utilization of intrinsic motivation (showing interesting relations between the school curriculum and the pupil's total existence), and the pupils' reported science interest. Positive relations were shown between warmth and interest in science, and between motivation and interest. Seven of the 14 demand items showed a curvilinear relation with science interest: Low and high demand were associated with low interest in science, whereas medium demand was associated with high interest.

Taken together, these studies suggest that warmth and consideration of feelings are positively related to student gains, as also is a certain degree of structure. These results are similar to those obtained from leadership studies. The "participation" dimension is usually interpreted in teacher behavior studies as student-centered or indirect; some correlates of this dimension will be discussed below as well as some other evidence from reviews of the literature.

Previous Reviews of the Literature

Much has been done to try to identify variables related to effective teaching; for example, the review of over 3,000 studies performed by Musella (1966). Morsch and Wilder (1954) were pessimistic after reviewing research from 1900 to 1952:

> No single, specific, observable teacher act has yet been found whose frequency or percent of occurrence is invariably (and) significantly correlated with student achievement (p. 4).

Although few experimental studies have been performed, there is now more evidence to suggest correlations between certain behaviors and student gains. Gage (1965) identified the following characteristics of teachers as desirable on correlational grounds: warmth, cognitive organization, orderliness, indirectness, and ability to solve instructional problems.

Two reviews of teacher behavior in secondary school science (Blosser and Howe, 1969; Bruce, 1968) discussed types of teaching procedure and concluded that, on the whole, different procedures were not equally effective for all objectives. High student involvement was associated with more successful teaching but the success of a particular teaching method such as "investigations" was reported to depend upon the philosophy of the teacher.

Flanders (1969) believes that we will find more correlations between teaching behavior and student gains as we shift from subjective evaluations toward more objective counting of teacher-pupil interactions. He summarized research that supports the importance of indirectness thus:

> Nevertheless, it can now be stated with fairly high confidence that the percentage of teacher statements that make use of ideas and opinions previously expressed by pupils is directly related to average class scores on attitude scales of teacher attractiveness, liking the class, etc., as well as to average achievement scores adjusted for initial achievement (p. 1426).

A review of the literature by Rosenshine and Furst (1971) is used to summarize this section. Class mean student achievement was used as the dependent variable in correlational studies that investigated effective teacher behaviors:

> The five variables which yielded the strongest relationships with measures of student achievement are: clarity, variability, enthusiasm, task orientation and/or businesslike behavior, and student opportunity to learn. The six less strong variables are: use of criticism, use of structuring comments, use of multiple levels of discourse, probing, and perceived difficulty of the course. The relationships are positive for ten of the variables and negative for use of criticism (pp. 54-55).

There are, however, problems in lumping together various studies from a variety of subject fields and teaching levels. The first is a problem of definitions--whether, for example, different researchers mean the same thing when they speak of "enthusiasm." Another is the fact that studies in different areas may show different results and these might be lost when all the studies are considered together. It is becoming increasingly apparent that we must look for *different* kinds of effective teachers depending upon the variables in a particular situation. This argument will be taken up again under the situational approach (p.77).

College Instructor Behavior

As there is a separate literature for college teachers or instructors, they are being treated separately from teachers in the elementary and secondary schools.

Instruments for Describing Instructor Behavior

End of course evaluation instruments are very common in colleges. The majority of these employ a modified 5-point Likert scale to describe the frequency of certain instructor behaviors (Costin, 1971; Deshpande et al, 1970). The Illinois Course Evaluation Questionnaire (Aleamoni, 1973; Spencer and Aleamoni, 1973) uses a 4-point Strongly Agree to Strongly Disagree scale, and a graphic rating scale has been used with some Purdue instructor forms (Stern, 1963). A forced choice format used by Cosgrove (1959) and on some Purdue forms (Stern, 1963) allows an instructor to receive a profile of comparative strengths and weaknesses although the feedback cannot be compared to group norms as is possible with the other forms.

Behaving Styles

Dimensions of instructor behavior have been described in many studies. Gibb (1955) started from the LBDQ developed at Ohio State (p. 42) and made minor changes to fit the college classroom situation. The 165 item questionnaire was filled out by 119 male students to describe 70 different instructors in the sciences, social sciences, and humanities.

From a factor analysis, four dimensions of behavior were identified: friendly-democratic (no great distance between students and instructor), communication (instructor facilitates exchanges of information in the group), organization (instructor was systematic and businesslike), and academic emphasis (emphasis on work with teacher-set goals). Gibb pointed out the similarity of these results with those of Hemphill (published later in Hemphill and Coons, 1957).

Isaacson et al. (1964) extended Gibb's work. They added extra items and, after taking the best loading items from a pilot project, used the new questionnaire of 46 items with over 1,000 students in introductory psychology courses. From a factor analysis, six factors were identified: skill (general assessment, clear and interesting), overload (amount and difficulty of work expected), structure (organization and planning), feedback (teacher concern over student work), group interaction (freedom and giving of opinions), and student-teacher rapport (friendly and permissive). Isaacson et al. describe similarities between their factors and those of Gibb (1955).

Use of the Isaacson et al. (1964) items with a new population of undergraduate students in psychology taught by teaching assistants (Costin, 1968) resulted in the identification of five factors: skill, structure, feedback, group interaction, and student-teacher rapport. Pambookian (in press) also used the form with 252 students in 13 introductory and educational psychology classes and identified seven factors: rapport, interaction, feedback, skill, overload, structure and achievement standard.

Deshpande et al. (1970) began with a pool of 800 statements about instructor behavior derived from a search of the literature and opinions of the faculty and students of a department of electrical engineering. These items were screened to develop a questionnaire of 147 items in 11 categories. The questionnaire was distributed to 675 undergraduates taught by 32 instructors. The class means were used in a factor analysis that identified 14 first-order factors. Factors contributing 6% or more of the overall variance were motivation (17%), rapport (16%), structure (11%), clarity (7%), and content mastery (6%). A second-order factor analysis of the 14 factor scores identified four factors: cognitive merit, affective merit, stimulation, and stress. Both sets of dimensions show strong similarities to previous studies.

Cosgrove (1959) began with 200 items which were sorted by 6 persons into five areas of instructor behavior. The 150 items on which there was most agreement by the sorters were administered to 100 educational psychology students. On the basis of their responses, preference and discrimination indices were found, and four factors of instructor behavior were identified: knowledge and organization of subject matter, adequacy of relations with students in class, adequacy of plans and procedures in class, and enthusiasm in working with students. Except for the absence of a separate participation or interaction factor, these dimensions seem very similar to those isolated by the leadership studies.

Widlak et al. (1973) summarized over twenty studies (mostly at the college level) and identified three main dimensions of behavior: actor (communicator, monolog), interactor (reciprocator, dialog), and director (administrator, pedagog). In their own analysis of responses to the Course-Instructor Evaluation form (CIE) by students of 208 Purdue University professors (in all academic areas and from freshman to senior levels) the same factors were identified.

The similarities between the dimensions found in leadership, school teaching, and college studies are discussed again later (pp. 64-77). The remainder of this section is devoted to a discussion of instructor behaviors considered to be related to effective teaching. Two sources have been used--reports of student opinions and correlational studies.

Student Opinions on Effective Instructor Behavior

Several surveys have been conducted asking students to rank or describe teaching behaviors they felt were possessed by effective instructors. The following behaviors have been identified: has a comprehensive knowledge of the subject matter, shows interest in the subject, is well prepared for class, and motivates students to do their best (Downie, 1952); interprets abstract ideas and theories clearly, gets students interested in the subject, has increased my skills in thinking, has helped broaden my interests, stresses important material, makes good use of examples and illustrations, motivates me to do my best work, inspires class confidence in his knowledge of the subject, has given me new viewpoints or appreciations, and is clear and understandable in his explanations (French, 1957); has a thorough knowledge of subject matter, gives well planned and organized lectures, is enthusiastic and energetic, shows a lively interest in teaching, and is student-oriented, friendly, and willing to help students (Crawford and Bradshaw, 1968); shows expert knowledge of subject matter and systematic organization of course content, is able to explain clearly, has an enthusiastic attitude toward the subject, and is able to encourage thought (Musella and Rusch, 1968). The behaviors identified are very similar to those of other studies, especially that of Cosgrove (1959).

Correlations between Instructor Behavior and Effectiveness

The effectiveness of particular instructor behaviors is often measured by correlation with overall course or instructor assessment (Costin, 1968; Isaacson et al., 1964; Widlak and Quereshi, 1972) or perceived student gains (Hall, 1970). Less often are student gains in cognitive or affective outcomes measured. This is similar to the distinction between "satisfaction" and "productivity" as criteria of effectiveness in the leadership studies. McKeachie (1963) discussed the importance of deciding on the desired outcomes, since they determine the most appropriate method of teaching to be used.

Positive relationships have been found between students' "critical thinking" and teachers' rating on "rapport" (McKeachie et al., 1971), clear explanations, stimulating students' intellectual curiosity, interesting presentation of course material, attention to student reactions, friendliness, permissiveness and flexibility (McKeachie, 1969).

There are, however, very few significant relationships reported between particular teaching methods or instructor behavior and student gains (McKeachie, 1963). Anderson (1959) carried out an extensive and critical review of studies concerning the relative effects of "authoritarian" and "democratic" leadership on learning. He found both were inadequately defined and neither consistently related to greater production of learning. Stern (1963), after reviewing 34 studies mostly of college classes, concluded:

> In general, it would appear that amount of cognitive gain is largely unaffected by the autocratic or democratic tendencies of the instructor (p. 426).

He did, however, report that nondirective instruction did seem to be more effective in changing attitudes. Although not superior for cognitive outcomes, McKeachie (1963), reported some similar findings for student-centered methods:

> In eleven studies, significant differences in ability to apply concepts, in attitudes, in motivation, or in group membership skills have been found between discussion techniques emphasizing freer student participation compared with discussion with greater instructor dominance. In ten of these the differences favored the more student-centered method (p. 1140).

The fact that no one method is always superior is probably due, at least partly, to individual student preferences (pp. 93-126).

Supervisor and Principal Behavior

Instruments for Describing Supervisor and Principal Behavior

It is interesting that questionnaires used to describe these kinds of administrators have been drawn both from leadership studies and from the classroom. Halpin (1956) adapted the LBDQ for use with school superintendents and gave results comparing aircraft commanders and school superintendents in his manual (1957b). Lutz and McDannel (1973) made use of leadership literature in their investigation of the different kinds of elementary school principal's rule administration behavior. Peruzzi (1972) made use of the Getzels and Guba (1957) Social Systems Process Model of Educational Administration as a theoretical framework for the development of a supervisory style instrument.

On the other hand, Blumberg and Amidon (1963) adapted Flanders Interaction Analysis (Flanders, 1970) into items that were used by teachers to describe the behavior of principals in faculty meetings. The adapted instrument was also used by Blumberg and Amidon (1965) and Blumberg and

Weber (1968) to investigate the effect of principal or supervisor behavior on teachers' satisfaction or morale.

Correlations between Supervisor and Principal Behavior and Effectiveness

In the Blumberg and Amidon study (1963), 89 inservice teachers were asked to describe the frequency with which their principals gave opinions and information, reprimanded teachers, etc. Two groups were identified: the top 25% who described most faculty-centered groups and the bottom 25% who described most principal-centered groups. Satisfaction measures between the two groups were compared:

> In one sense, the significant differences were all in favor of the faculty-centered group. That is, these teachers were more satisfied, felt their faculty more alert, thought the faculty members were closer, saw their principal as being less critical, felt teachers had more freedom to speak, and perceived less conflict between their preferences and what actually happened in the meetings than did the principal-centered groups (p. 467).

In Blumberg and Amidon's study with 166 inservice teachers (1965), reports were collected on the "direct" and "indirect" behavior of their principals. On these results, four groups of sixteen teachers were distinguished: Group A had high direct and high indirect principals, Group B had high direct and low indirect principals, Group C had low direct and high indirect principals, and Group D had low direct and low indirect principals. Teacher judgments of high satisfaction, productivity, etc. were found to be more frequently associated with high indirect principal behavior (groups A and C) than low indirect behavior (groups B and D). Low direct behaviors (groups C and D) were rated as more supportive than high direct (groups A and B), but Group D teachers did not report much satisfaction or productivity.

Similar results were found by Blumberg and Weber (1968). Here the relationship investigated was between teacher perceptions of direct-indirect supervisor behavior and reported morale of teachers. The highest mean morale score was found in the group of teachers who perceived the supervisory behavioral style as low direct and high indirect. The next highest was high direct, high indirect, and the lowest morale was associated with low direct, low indirect.

Dimensions of Leader and Teacher Behavior

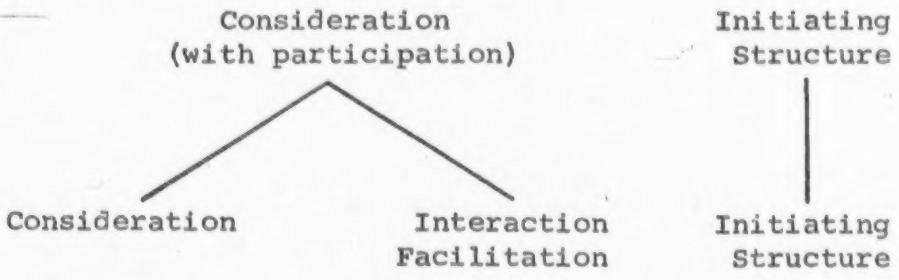
In examining leader and teacher behavior studies, similar dimensions of behavior are often mentioned. In some cases, these dimensions have been recognized on the basis of factor analysis, in others on the basis of theoretical considerations or on the basis of inspection. For example, the dimension of consideration is often recognized in elementary and secondary school, instructor and supervisor studies.

From a review of leadership studies, Bowers and Seashore (1966, 1967) identified four dimensions of behavior they felt were represented in the literature. In this section their framework is used to examine teacher behavior studies. Dimensions in many leader and teacher behavior studies are examined, both the definitions used by different authors and the items that were assigned to the dimensions. Where the dimensions appear to have considerable overlap, they are equated. Studies with similar dimensions of behavior are then grouped together. From now on, terms used to denote dimensions are capitalized to distinguish them from the general behaviors to which they refer.

Bowers and Seashore (1967) identified four dimensions of leader behavior: Support, Interaction Facilitation, Goal Emphasis, and Work Facilitation. The present review of leader and teacher behavior underscores the importance of these four dimensions. However, simpler and more complex models can be derived from the four-dimension solution. The remainder of the section will describe two-, three-, four-, and five-dimension behavior models of leader and teacher behavior.

The simplest possibility is shown by the two-dimension solution of Consideration and Initiating Structure which was discussed on p. 43. Several teaching studies also show two dimensions that, on item content, appear to be similar to those of the leadership studies. Table 1 summarizes the two-dimension studies.

An examination of the items on the Consideration dimension reveals, however, that some of them are more concerned with interaction and participation rather than with considerate behavior in a narrow sense. These items could be removed to give a purer Consideration dimension and an Interaction Facilitation dimension. A three-dimension solution is then derived:


Consideration
(with participation)
Initiating
Structure
Consideration
Interaction
Facilitation
Initiating
Structure

These three dimensions of behavior have been suggested by Yukl (1971) and supported by his review of the literature.

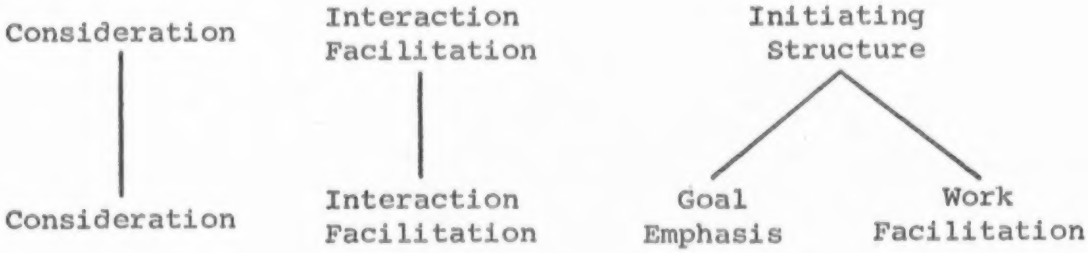
TABLE 1

STUDIES SHOWING CONSIDERATION AND INITIATING STRUCTURE DIMENSIONS OF LEADER AND TEACHER BEHAVIOR

Investigators	Dimension	
	Consideration	Initiating Structure
	Leadership Studies	
Katz et al. (1950)	Employee Orientation	Production Orientation
Fleishman (1957a)	Consideration	Initiating Structure
Halpin (1957a, 1966)	Consideration	Initiating Structure
Bass (1960)	Consideration	Initiating Structure
Cartwright and Zander (1960)	Group Maintenance	Group Achievement
Fleishman and Harris (1962)	Consideration	Initiating Structure
Blake et al. (1964)	Concern for People	Concern for Production
	Teaching Studies	
Smalzreid and Remmers (1943), Creager (1950), Bendig (1954)	Sympathetic toward Students and Fair in Grading	Confidence, Presentation, and Interest in Subject Matter
Cogan (1958)	Inclusive; Preclusive (negative)	Conjunctive
Magoon and Bausell (1970)	Instructor Rapport	Instructor Impact; Difficulty
Widlak et al. (1973)	Interactor	Actor; Director

Leadership and teaching studies with these dimensions are shown in Table 2.

Although Initiating Structure can be broadly described as task-oriented behavior, it appears that it can be further subdivided. One aspect is the concern about productivity (goal-oriented comments) which in the classroom situation could be described as stressing the learning goals and motivating students by enthusiasm and stimulating work. Another aspect would be the actual structuring of the situation for attainment of the work goals. These two aspects can be called Goal Emphasis and Work Facilitation. This solution is shown below:


Consideration
Interaction Facilitation
Initiating Structure
Consideration
Interaction Facilitation
Goal Emphasis
Work Facilitation

This four-dimension solution corresponds to that suggested by Bowers and Seashore (1966; 1967) on the basis of their review of leadership studies although they use the term Support instead of Consideration. Their definitions (Bowers and Seashore, 1967) of these four dimensions are

TABLE 2

STUDIES SHOWING CONSIDERATION, INTERACTION FACILITATION, AND INITIATING STRUCTURE DIMENSIONS OF LEADER AND TEACHER BEHAVIOR

Investigators	Dimensions		
	Consideration	Interaction Facilitation	Initiating Structure
		Leadership Studies	
Hemphill and Coons (1957)	Maintenance of Membership Character	Interaction Facilitation Behavior	Objective Attainment Behavior
Yukl (1971)	Consideration	Decision Centralization	Initiating Structure
		Teaching Studies	
Ryans and Wandt (1952)	Emotional Climate	Classroom Social Structure	Verbal Emphasis
Gibb (1955)	Friendly and Democratic	Communication	Organization; Academic Emphasis
Medley and Mitzel (1958)	Emotional Climate	Social Organization	Verbal Emphasis
Costin (1971)	Teacher Support	Student Involvement	Teacher Control; Negative Affect

as follows:

> 1. Support: behavior which serves the function of increasing or maintaining the individual member's sense of personal worth and importance in the context of group activity;
>
> 2. Interaction Facilitation: behavior which serves the function of creating or maintaining a network of interpersonal relationships among members of the group;
>
> 3. Goal Emphasis: behavior which serves the function of creating, changing, clarifying, or gaining member acceptance of group goals;
>
> 4. Work Facilitation: behavior which serves to provide effective work methods, facilities and technology for the accomplishment of group goals (p. 46).

Some leadership and teaching studies that have a similar four-dimension solution are given in Table 3.

Some classroom studies appear similar to Bowers and Seashore's four-dimension solution but do not have a separate dimension of Interaction Facilitation although some interaction items may be included on other dimensions. These studies perhaps reflect teacher-centered classrooms where there is little participation or interaction of students. A prime example is the pattern identified by Ryans (1960) of the following dimensions:

X_o: Understanding, Friendly, and Responsive versus Aloof and Egocentric

TABLE 3

STUDIES SHOWING CONSIDERATION, INTERACTION FACILITATION, GOAL EMPHASIS, AND WORK FACILITATION DIMENSIONS OF LEADER AND TEACHER BEHAVIOR

Investigators	Dimension			
	Consideration	Interaction Facilitation	Goal Emphasis	Work Facilitation
		Leadership Studies		
Halpin and Winer (1957)	Consideration	Sensitivity	Production Emphasis	Initiating Structure
Likert (1961)	Supportive Relations	Group Methods of Supervision	High Performance Goals	Technical Knowledge; Scheduling and Planning
Bowers and Seashore (1966, 1967)	Support	Interaction Facilitation	Goal Emphasis	Work Facilitation
		Teaching Studies		
Isaacson et al. (1964)	Student-Teacher Rapport	Group Interaction	Feedback	Skill; Overload; Structure
Costin (1968)	Student-Teacher Rapport	Group Interaction	Feedback	Skill; Structure
Hall (1970)	Personal Rapport with Students	Interaction Facilitation; Willingness to Change	Feedback on Student Work	Instructor's Contribution; Task Concern; Student Autonomy
Pambookian (in press)	Rapport	Interaction	Feedback	Skill; Overload; Structure; Achievement Standard

Z_o: Stimulating, Imaginative, and Original versus Dull and Routine

Y_o: Responsible, Businesslike, and Systematic versus Evading, Unplanned, and Slipshod

Studies of this kind are shown in Table 4.

TABLE 4

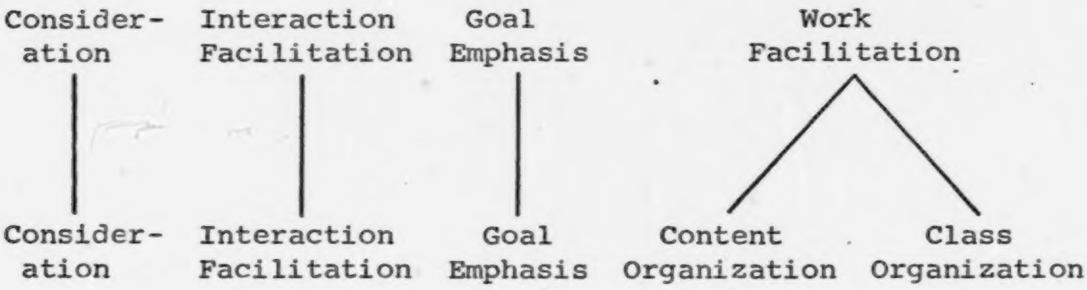
STUDIES SHOWING CONSIDERATION, GOAL EMPHASIS, AND WORK FACILITATION DIMENSIONS OF TEACHER BEHAVIOR

Investigators	Dimension		
	Consideration	Goal Emphasis	Work Facilitation
Ryans (1960)	Understanding, Friendly, and Responsive	Stimulating, Imaginative, and Original	Responsible, Businesslike, and Systematic
Reed (1962)	Warmth	Motivation	Demand
Deshpande et al. (1970)[a]	Affective Merit	Stimulation	Cognitive Merit; Stress

[a] Second-order factors.

In several classroom studies, it seems that subject matter expertise and pedagogical expertise can be identified within what has previously been labelled Work Facilitation. Such a breakdown has not been observed in leadership studies, except perhaps in suggestions by Likert (1961) and Stogdill (1963). The pedagogical expertise seems to be a kind of disciplinary ability in the elementary and secondary school studies, and definition of roles and expectations in the college studies.

It is thus possible in teaching to make a distinction between technical knowledge or content organization (knowledge and organization of the subject matter) and managerial functions or class organization (definition of roles and classroom procedures, control or discipline). The earlier formulation could thus be extended as shown below.


Consider-ation
Interaction Facilitation
Goal Emphasis
Work Facilitation
Consider-ation
Interaction Facilitation
Goal Emphasis
Content Organization
Class Organization

Some studies and reviews of the literature that describe Content and Class Organization and include Interaction Facilitation are shown in Table 5.

In other studies more characteristic of a teacher-centered classroom, there is the same kind of breakdown of Work Facilitation without the separate dimension of Interaction Facilitation. A practical example is the four

TABLE 5

STUDIES SHOWING CONSIDERATION, INTERACTION FACILITATION, GOAL EMPHASIS, CONTENT ORGANIZATION, AND CLASS ORGANIZATION OF DIMENSIONS OF TEACHER BEHAVIOR

Investigators	Dimension				
	Consideration	Interaction Facilitation	Goal Emphasis	Content Organization	Class Organization
Veldman and Peck (1963)	Friendly and Cheerful	Non-directive	Lively and Interesting	Knowledgeable and Poised	Firm Control
Gage (1965)[a]	Warmth	Indirectness	-[b]	Cognitive Organization	Orderliness; Solving Instructional Problems
Baird (1971)	Warmth	Student Response	-[b]	Subject Strategies	Ambiguity (negative)
Rosenshine and Furst (1971)[a]	Criticism (negative)	Use of Student Ideas	Variability; Enthusiasm	Clarity; Student Opportunity to Learn Material	Businesslike

[a] Review of the literature.

[b] Dimension not identified.

dimension solution of Cosgrove (1959):

Adequacy of relations with students in class
Enthusiasm in working with students
Knowledge and organization of subject matter
Adequacy of plans and procedures in class.

This and similar studies are shown in Table 6.

Summary of the Behavioral Approach

The previous section identified four basic dimensions of leader and teacher behavior: Consideration, Interaction Facilitation, Goal Emphasis, and Work Facilitation. Studies were found in which these dimensions were not completely separated from each other, and some teaching studies in which further subdivisions of dimensions were identified. When Gibb (1955) used an adaptation of the LBDQ (Hemphill and Coons, 1957) with college students, he concluded:

> On the whole, it must be concluded that Hemphill's study of leader behavior as described by subordinates and the present study of teacher behavior as described by students yield very similar results. Perhaps the implication of this fact is that we are dealing here with superior-subordinate social relationships of somewhat different kinds in terms of quite basic dimensions of social relations (p. 262).

The present review of leadership and teaching behavior studies supports that view.

TABLE 6

STUDIES SHOWING CONSIDERATION, GOAL EMPHASIS, CONTENT ORGANIZATION, AND CLASS ORGANIZATION DIMENSIONS OF TEACHER BEHAVIOR

Invest-gators	Dimension			
	Consideration	Goal Emphasis	Content Organization	Class Organization
Cosgrove (1959)	Relations with students	Enthusiasm in Working with Students	Knowledge and Organization of Subject Matter	Plans and Procedures in Class
Gupta (1960)	Affective Merit	Motivation	Comprehension	Disciplinary Ability
Deshpande et al. (1970)[a]	Rapport	Motivation	Content Mastery; Clarity	Structure
Widlak and Quereshi (1972)	Rapport	Ability to Motivate Students	Conduct and Scholarship; Clarity	Instructional Skill and Organization
Spady (1973)	Empathy and Concern	Stimulation and Excitement	Subject Matter Expertise	Pedagogical Expertise

[a] Best first-order factors.

However, although the four dimensions of Bowers and Seashore (1967) seem to capture the essence of leader and teacher behavior, there is not a stable relation between these behaviors and what is considered effective (House, 1971). It seems likely that characteristics of the group to be led or taught, the type of task, and wider pressures of the organization and environment, act as intervening variables in determining whether particular leader or teacher behaviors are effective or not. These considerations will be examined in the next section which is concerned with the situational approach.

The Situational Approach--"The Situation Will Determine Who Will Be an Effective Leader or Teacher"

At the beginning of this chapter, the question was raised, "Is it true that an effective leader or teacher in one situation will be equally effective in another, or do we have to consider other variables in the situation?" Conclusions from the discussion of traits (pp. 38-40) and behaviors of leaders (pp. 44-46), school teachers (pp. 52-54) and instructors (pp. 60-62) showed no simple relationships between traits or behaviors and effectiveness that held true in different situations. Correlations that were found were often inconsistent from one study to another. Hollander and Julian (1969) have suggested one reason for this:

> Personality characteristics which may fit a person to be a leader are determined by the perceptions held by followers, in the sense of the particular role expectancies and satisfactions, rather than by the traits measured via personality scale scores (p. 389).

A leader's effectiveness is then seen to be partly dependent on the expectations held for him by the group members. In this case, the group members are part of the environment or situation, and the leader must take account of them according to Lewin's (1946) formula of $B = F(P, E)$: "behavior is a function (F) of the person (P) and of his environment (E) (p. 791)."

What are the situational variables that shape a leader's or teacher's behavior and how are different behaviors viewed in different situations? This question was systematically attacked by Hemphill (1949a, 1949b). He identified ten important group characteristics: size, viscidity, homogeneity, flexibility, stability, permeability, polarization, autonomy, intimacy, and control; and he investigated correlations of these with dimensions of leader behavior and overall judgment of the quality of leadership. Some characteristics with different acceptance depending upon the group characteristics were speed in making decisions, authority, exhibition of superiority, and inconsistency and display of emotion.

Since that time, many writers in the fields of leadership and teaching have tried to identify important situational variables that moderate leader or teacher behavior. The rest of this chapter will center on discussion of the following topics:

1. Characteristics of the leader
2. Fiedler's contingency model
3. Other situational models
4. Tasks and desired outcomes
5. Organizational pressures
6. Environmental pressures
7. Group member ideals and expectations
8. Summary of the situational approach.

Characteristics of the Leader

The effectiveness of a leader or teacher in a particular situation is limited firstly by the range of behaviors that he can demonstrate. A leader's or teacher's behavior will be determined by his attitudes and values and by his leadership style. The traits approach (pp. 30-40) discussed some correlations between personality attributes and actual teaching behavior. The review of Blosser and Howe (1969) highlighted a common observation that the success of a particular teaching innovation will be largely influenced by the philosophy of the teacher.

Leadership style refers to the underlying needs of the leader that motivate his behavior. Fiedler (1967, 1969, 1971) described two leadership styles: relationship-oriented and task-oriented. His descriptions (1969) are given below:

> (A relationship-oriented person) gets his major satisfaction from establishing close personal relations with his group members. He uses the group task to gain the position of prominence he seeks (p. 40).

On the other hand,

> (A task-oriented person) obtains his major satisfaction by successfully completing the task, even at the risk of poor interpersonal relations with his workers (p. 40).

As mentioned above, a leader's or teacher's behavior will be limited by his underlying leadership style. To the extent that the person is flexible and aware of situational variables, he can change his actual leadership behavior to suit the situation.

To summarize, forces in the leader include his personality and values and his comfort with a particular leadership style. Other factors that are important in his choice of behavior will be his tolerance of ambiguity and his assessment of his own and his group members' competence.

Fiedler's Contingency Model

Fiedler (1967, 1969, 1971, 1972) has proposed that a person's leadership style is difficult to change, that some styles are more appropriate in some situations than others, and that we should try to fit the situation to the leader rather than expect the leader to change to fit the situation. In his contingency model, he has three situational variables: leader-member relations, task structure, and position power.

Leader-member relations are the extent to which the leader and members are in accord, get along, or like each other. Task structure is the degree to which the task has definite, verifiable outcomes rather than vague, indefinite ones. Position power is the degree to which the organizational position the leader occupies accords him authority over members of the group. In Fiedler's model, each of these variables is dichotomized to give eight possible group situations or cells. Different leadership styles are considered more effective in different cells. On the results of his research, Fiedler (1969) concluded:

> ...a task-oriented leader performs best in situations at both extremes--those in which he has a great deal of power, and also in situations where he has no influence and power over group members.
>
> Relationship-oriented leaders tend to perform best in mixed situations where they have only moderate influence over the group (p. 42).

Fig. 2 shows the eight cells of the model, and the leadership styles considered most appropriate for each.

Fiedler's ideas have been used in industry (Hunt, 1967) and education (Hardy, 1971; Turner, 1971). In discussing Fiedler's model, Turner (1971) said:

> The model clearly suggests that past studies of leadership style in teaching which have not taken into account the primary situational variables upon which the effectiveness of leadership style is apparently contingent are at the maximum uninterpretable and at the minimum of slight external validity (p. 28).

Although Turner accepted Fiedler's model enthusiastically, there are criticisms and problems concerned with its general applicability and in particular its applicability to education. Problems concerned with general methodology have been described by Graens et al. (1970, 1971). Especially serious is the problem of assessing leader-member relations after the group has completed the task, thus allowing for

Leader-member relations	Good				Poor			
Task structure	Structured		Unstructured		Structured		Unstructured	
Position-power	Strong	Weak	Strong	Weak	Strong	Weak	Strong	Weak
	1	2	3	4	5	6	7	8
	Task-oriented leader more effective (best in cells 1 and 2, then 3)			Relationship-oriented leader more effective (best in cell 4, then in 5 and 6)			Task-oriented leader again better (best in cell 8)	

Fig. 2. Fiedler's Contingency Model

contamination of relations by group performance. This would account for the fact that leader-member relations are found to be the most important situational variable. Another general criticism is the problem of deciding whether situational variables cause the group outcomes and influence leader behavior, or whether leader behavior creates the situational variables (Lowin and Craig, 1968).

In the educational setting, there is also a problem of measuring leadership style. Fiedler's questionnaire for describing one's Least Preferred Coworker has been used in industry to define leadership style. The validity of this questionnaire seems to depend upon the person having had to work with a variety of other people, so that the responses to the questionnaire reflect a person's true feelings and are not just a function of the few people he happens to have worked closely with. Teachers, however, can to a large extent work independently of each other if they so choose, so the basic assumption may not be true.

Many writers have recognized the importance of a host of other situational variables: Fiedler's contribution is that he has developed a contingency model to explain the operation of his variables. Several workers are in various stages of developing models relating these and other situational variables to effectiveness.

Other Situational Models

Golembiewski (1965) has developed a model that relates leadership, role styles, atmosphere, personality, cohesiveness, and norms (social pressure) to group outcomes. Hollander and Julian (1969) stress the importance of considering the leader and the situation as interrelated and interdependent. They say:

> The leader, from the follower's vantage point, is an element in the situation, and one who shapes it as well (p. 389).

Yukl (1971) and House (1971) have developed situational models that they have supported from the literature and by empirical tests. Yukl has developed a multiple linkage model that seeks to show how dimensions of leader behavior and situational variables are related to subordinate motivation, task-role organization, subordinate skill level and group performance. House (1971) draws upon the expectancy theory of motivation and shows the importance of three classes of situational variables: subordinate's task characteristics, environmental variables, and subordinate preferences for different kinds of leader behavior.

Tannenbaum and Schmidt (1958) have described a continuum from complete use of authority by the leader to complete freedom of the group. They say that a leader should choose the most effective position along this continuum on the basis of:

1. Forces in the leader (values, style, competency, etc.)
2. Forces in the subordinate group (need for dependency, expectations, etc.)
3. Forces in the situation (organizational pressures, task, time factors, etc.).

Situational Variables

On the basis of the studies listed above, the formulation illustrated in Fig. 3 has been developed to describe the situational variables that determine whether a leader or teacher will be effective in a particular situation. The characteristics of the leader have already been dealt with (p. 79). Of the other variables, group member ideals and expectations will receive the greatest attention since they form the basis of the present study.

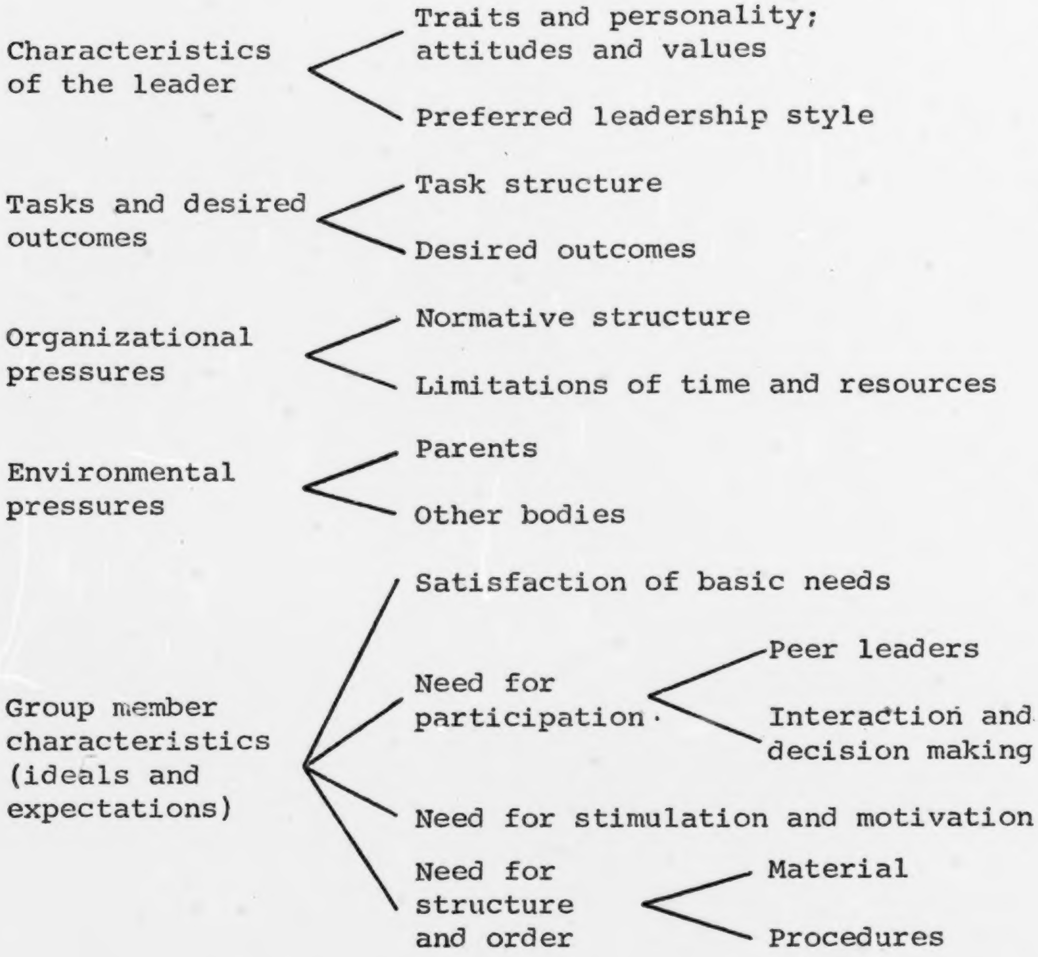

Characteristics of the leader
Traits and personality; attitudes and values
Preferred leadership style
Tasks and desired outcomes
Task structure
Desired outcomes
Organizational pressures
Normative structure
Limitations of time and resources
Environmental pressures
Parents
Other bodies
Group member characteristics (ideals and expectations)
Satisfaction of basic needs
Need for participation
Peer leaders
Interaction and decision making
Need for stimulation and motivation
Need for structure and order
Material
Procedures

Fig. 3. Situational Variables which Determine Leader or Teacher Effectiveness

Tasks and Desired Outcomes

A variety of tasks and learning outcomes have been identified. Several writers have listed variables that might be important in learning (Biddle, 1967; Lomax, 1972; Mitzel, 1957; Peck, 1971; Ramsey and Howe, 1969; Siegel and Siegel, 1967). More complex models seek to find the interrelationships between the variables themselves and relationships between the variables and various learning outcomes (Cohen, 1972; Cronbach, 1957; Gage, 1963; Ryans, 1960; Salomon, 1972). Such multivariate paradigms need to have at least three components: teaching methods, instructional objectives, and learner characteristics. Thus some methods would be optimal for certain objectives only for pupils with certain aptitudes or attitudes. These suggestions will receive further attention (p. 95).

Two important considerations in deciding upon appropriate teaching behaviors are the degree of structure of the task and the desired outcomes.

Task structure

This has been used as a situational variable by Fiedler (p.81). He used four scales from Shaw's system (Fiedler, 1967, p. 28) concerned with decision verifiability (the degree to which the correctness of the solution can be demonstrated), goal clarity (the degree to which the requirements of the task are clear and known to group members), goal path multiplicity (the degree to which the task can be solved by a variety of procedures), and solution specificity (the degree to which there is more than one correct solution). Different procedures would be appropriate for different kinds of task structure. Gage (1969) has suggested that although lectures may be appropriate for high consensus fields where imparting of knowledge is important, "student-centered discussions may well be found to be superior for the objectives of the low-consensus fields (p. 455)."

Desired Outcomes

Here are included psychomotor skills, cognitive and affective gains. Literature is accumulating which would favor some teaching methods over others for different outcomes, for example, drill and practice for psychomotor skills. Stern (1963), after reviewing 34 studies, mostly of college classes, came to this conclusion:

> ...Non-directive instruction facilitates a shift in a more favorable, acceptant direction. ...The effectiveness of these techniques in modifying attitudes is probably attributable to the fact that norms are more readily established in groups characterized by a high rate of communication among participants (p. 428).

In conclusion, where there is evidence to suggest some methods and behaviors are more appropriate than others in a certain situation, these should be considered by a teacher if he wishes to be effective in that situation. Such evidence is rare, but growing. In any case, applications must take account of individual student characteristics, as described on p. 95-126.

Organizational Pressures

In a broad sense, these pressures produce the normative structure of the organization: its values and traditions and the expected roles of the leader or teacher. (The expected role as determined by group members or students will be treated separately (p. 93).) In a narrow sense, these pressures are the day-to-day limitations of time and resources.

Normative Structure

Getzels and Guba (1957), Getzels et al. (1968) and Halpin (1957c) have developed models describing how administrator behavior is affected by the organization. Halpin's model involves variables such as organizational tasks, administrator behavior, group member characteristics, and patterns of administrative organization related to criteria of administrator effectiveness. The other writers describe the Social Systems Process Model of Educational Administration. An institution such as a school is seen as having certain defined roles and expectations for the supervisor, principal, and teacher. The individual, on the other hand, has his own personality and dispositions. The interactions of these variables with each other and the wider environment lead to the actual behavior of the person in a particular role. Demands of the institution have to be integrated with individual need dispositions.

Teacher roles have been reviewed by Biddle (1969) who describes expectations held for teachers both by teachers and by others. These expectations do not necessarily correspond with observed performance, but there is considerable pressure to conform to the expectations of others (Berlew and Hall, 1966). Organizational socialization is also discussed by Schein (1964) who describes three alternative outcomes of the socialization of managers: rebellion, creative individualism, and conformity. These alternatives also seem appropriate to describe the fate of supervisors or teachers.

The normative structure of individual schools or colleges makes them recognizable as different in "set" or "morale" and makes generalizations difficult. Within individual faculties or departments, there will be policies laid down by the chairmen and different expectations for research and teaching. Hayes (1971) found that "individuals with high research ability and high rank tend to be assigned to high-level classes (p. 230)." If the role expectation includes a great deal of research, and this unduly influences promotion, then less time is available for teaching preparation.

Limitation of Time and Resources

These are sometimes critical variables in the choice of teacher behaviors. Time considerations may make it necessary for a teacher to cover material by lecturing when it may be more appropriate to let the students discover the results themselves by experimentation. The pool of instructional materials available will greatly influence the choice of instructional procedures (Ramsey and Howe, 1969; Turner, 1971). The physical arrangements of the learning situation and a large class size may also limit what the instructor would like to do.

Environmental Pressures

These are closely related to organizational pressures but are meant to include pressures from outside the school or organization.

Parents

Parental support, hostility, or indifference affect the role a teacher has to adopt and this will influence the range of behaviors that are possible or appropriate.

Other Bodies

Stotler et al. (1967) have described the pressures acting upon the supervisor and the science program and teacher in the school. These are also appropriate as pressures acting upon the college or university. They include scientific and professional societies, industrial and commercial agencies such as equipment producers and publishers; community agencies and forces such as labor unions and the church; and independent educational agencies such as educational foundations and accrediting associations. Beyond these are the pressures of the state legislature and the federal agencies.

Group Member Ideals and Expectations

Role expectations for the instructor's behavior are held by the students as well as by the department, the university, and the wider community. Prior experience, discussion with other students, and ideas about what usually happens in classes of a particular kind will determine student expectations on how the instructor will behave. Biddle and Ellena (1964) and Biddle and Thomas (1966) have described the student-teacher relationship as an interpersonal system based on a role-contract between teacher and students: The teacher and students come to class with certain expectations about goals, procedures, and rewards, and the classroom situation is the result of accommodation on both sides.

As well as expectations as to how the instructor will act, students also hold ideals as to how they would prefer the instructor to act. These ideals may be more or less well developed; a student may or may not know what teaching procedures best help him to learn. His ideals will also be influenced by his expectations. Hall (1970) found very little variance between ideal teaching styles in undergraduate classes in humanities and social science classes. More mature and experienced persons would be expected to vary more in their ideals, and these might be different between subject areas if students had self-selected themselves by their interests, ideals and expectations of how the instructor would behave.

The ideals of the student are situational variables that need to be taken account of in deciding whether an instructor will be effective. In a broad sense, these ideals are individual student differences. McKeachie (1963) has said:

> One reason for the host of experimental comparisons resulting in non-significant differences may be simply that methods optimal for some students are detrimental to the achievement of others (p. 1157).

We are here concerned with the field of Aptitude-Treatment Interaction (ATI) (Cronbach and Snow, 1969; Snow, 1970). Of the three models of ATI suggested by Salomon (1972), the preferential one is the most appropriate to the present discussion. In this model, the treatment (method of teaching) calls upon and utilizes the learner's higher aptitudes. Preferred learning style is found and utilized.

In discussing preferred learning conditions and ideal instructor behavior, some general results have been noted. These are outlined below.

Student Biographical Variables

Some general preferences for ideal instructor behavior have been correlated with age and sex. Other variables that have been found important are student ability, class size, whether the course is elected or required, and the professional standing of the instructor. Some relevant studies are reported below.

Macomber and Siegel (1960) found abler students to be less satisfied the less their responsibility for setting goals of learning. They also found a tendency for high-ability students to gain more in course-related attitudes in small rather than large sections. A similar finding was reported by Butcher (1968): Small classes were superior in effectiveness only with fairly able students and with those who were prepared to take an active part.

McLeish (1966) found that among mature teachers, there was a very marked preference for tutorials and seminars as against lectures, especially among women and among the more able students. This is different from the result of Solomon et al. (1963) with adults enrolled in evening courses, where it was found that women did best in the classes of teachers who scored high on the lecture dimension.

Granzin and Painter (1973) found weak relationships between ratings and student characteristics. For example, older students were not more favorable, females were more favorable but not much, and required courses were rated lower than electives. There was also a tendency for more difficult courses to be rated higher than easier ones; this may have been because the poorer students had dropped those courses.

McKeachie (1957) reviewed research on student ratings of faculty and concluded that most student characteristics made no difference: veteran/non-veteran, age, sex, student's grade, and freshman/sophomore/junior/senior. However, McKeachie et al. (1971) found that instructors higher in general skill and in structure were more effective with female students.

McKeachie (1957) and several other writers have found that graduates give higher ratings than undergraduates. This can be compared to reports from Downie (1952) and Gage (1961) that associate and full professors received higher ratings than assistant professors and teaching assistants, and from Hayes (1971) that faculty with high rank tend to be assigned to high-level courses. Graduates may give higher ratings simply because they have better teachers. Several of the studies related to correlates of sex, major, year, class size, and interaction have also been reviewed by Costin et al. (1971).

These then are some variables that might influence preferred learning styles or ideal instructor behavior. But from a review of the literature, other student differences have also been found important. These are considered below under four heads: satisfaction of basic needs, need for participation, need for stimulation and motivation, and need for structure and order; these correspond roughly to the four basic dimensions of instructor behavior: Consideration, Interaction Facilitation, Motivation, and Work Facilitation (p.75). The assumption underlying the following discussion is that if students have, for example, a high need for satisfaction of basic needs, they will describe their ideal instructor as high on Consideration. An instructor who demonstrates this behavior will satisfy his students on this dimension. Each of the needs listed under group member characteristics in Fig. 3 (p. 87) will be discussed in turn, followed by a summary of research on ideals and satisfaction.

Satisfaction of Basic Needs

Consideration or support, defined as behavior increasing an individual's sense of personal worth and importance, is the dimension of instructor behavior most closely related to satisfaction of basic needs. Basic needs in this context refers to the hierarchy of needs--safety, belongingness, love relations, and respect--identified by Maslow (1943, 1954, 1962). He believes these needs can only be satisfied from outside the person. A person whose basic needs are not satisfied shows considerable dependence on others. By contrast, Maslow's self-actualizing individual, by definition satisfied in his basic needs, is far less dependent, far more autonomous and self-directed.

These ideas bear some similarity to those of Liverant (1958) and Rotter (1971), who distinguish between persons under external and internal control. "Externals" feel more at the mercy of the environment whereas "internals" have more belief in their own potential and are more likely to attribute success and failure to themselves. Internals may be similar to Maslow's self-actualizing individuals.

Some evidence for the necessity to satisfy basic safety needs before becoming self-actualizing has been reported by Fuller (1969), Parsons and Fuller (1973), and Brown et al. (1972), who monitored concerns expressed by teachers using the Teacher Concerns Statement (Fuller and Case, 1972). They found that new teachers were concerned with discipline problems and questioned their own adequacy, whereas more experienced teachers expressed more concerns about pupil learning. When basic needs were satisfied, the teachers became more concerned about the progress of their students.

Several workers in industry have made use of Maslow's ideas for describing need-fulfillment deficiencies in management and in developing theories of motivation (Clark, 1960; Lawler, 1971; McGregor, 1962; Porter, 1961; Shepard, 1965). Porter administered a questionnaire to managers with items keyed to Maslow's needs hierarchy, and found that the greatest differences in need-fulfillment between bottom and middle management were in esteem, security, and autonomy needs, that self-actualizing and security were seen as more important areas than others, and that the higher order psychological needs were least satisfied. Lawler's motivation model (1971) included a person's belief about the outcomes of the job and their valences (desirabilities). McGregor (1962) and Shepard (1965) extended Maslow's ideas from the individual to the organization; some organizations were seen as being run on authoritarian control lines, while others (self-actualizing organizations) relied upon self control and self direction. Clark (1960) used Maslow's needs hierarchy to relate and explain the findings of a number of different studies concerned with motivation in work groups.

The need for warmth and unconditional positive regard has received a lot of attention in the study of the therapist-client interaction (Barrett-Lennard, 1962) and in the work of Rogers (1961, 1967) in education. Unqualified empathic understanding was found by Barrett-Lennard (1962) to be one of the relationship factors significantly related to improvement in the client's adjustment. Rogers (1967) has quoted experiences of teachers and the work of Emmerling (1961) and Aspy (1965) to support a positive relation between regard, empathic understanding, and congruence, and student satisfaction and learning gains. In this connection, it is interesting to note the result of Bellack and Davitz (1965) who found that teachers reacted to students at about 80% positive irrespective of the congruity or incongruity of the response of the pupil or the correctness of the substantive response. The positive results of the teacher liking the students has been reported by Schmuck (1963, 1966): There is likely to be a more diffuse liking structure among the pupils and better utilization of abilities when the teacher has a higher regard for pupils.

It can be concluded that where persons are disturbed, and perhaps also where they are young, high unconditional positive regard will be beneficial for personal development or learning. But do older children and college students also have a need for warmth and consideration? In applying Maslow's ideas to the classroom, Spady (1973) has said that the child must feel secure, adequate, and respected before he can achieve:

> ... The major implication of Maslow's theory for the authority system of the classroom is that the imposition of achievement expectations by the teacher must be preceded by a sufficient period of supportive and affirmative behavior (pp. 7-8).
>
> ...The teacher who is empathic toward his students has a better chance of meeting their basic security and esteem needs ... (p. 9)

Thus to the extent that different students have different unfulfilled security and esteem needs, to that extent will they need emphatic and considerate behavior.

Della-Piana and Gage (1955) asked 4th, 5th and 6th graders to describe their ideal teacher using the My Teacher instrument of Leeds (1950). They found some pupils were more concerned about feelings and personal relationships, while others were mainly achievement-oriented and paid less attention to teacher warmth in estimating their acceptance or rejection of particular teachers.

McKeachie (1961) found warmth affected some students positively and others negatively, and suggested that women as a group responded well to interpersonal warmth: They were more "people-oriented" than men. McKeachie et al. (1971) found that warm female instructors tended to give higher grades than less friendly and considerate instructors, and that they were more effective as judged by student achievement on objective tests. With male teachers, high teacher warmth resulted in relatively high achievement for the women students but not for the men.

From this literature, it seems that persons differ in their requirements for warmth and consideration, and that different students would describe their ideal differently on the Consideration dimension of behavior. There is some suggestion that, on average, females require more consideration than males. An effective teacher would demonstrate considerate behavior in response to the needs of the particular students in that situation.

Need for Participation

Group members differ in their desire for participation--the planning and execution of the methods and procedures of the group. This statement is supported by an extensive literature, some of which is quoted below. If the role structure of the group is clearly defined and accepted in principle by the group members, participation will be restricted to interaction between group members and between group members and the assigned leader. In the college setting, this will be student-to-student and student-to-instructor interaction and some joint planning of procedures under the guidance of the instructor. If there is no clearly defined leader, then the group members are initially equal and the person best suited to lead at a particular moment will take over the leadership role. This roles approach to leadership receives considerable attention in social psychology, and is considered to be of increasing importance in education as a teacher loses or chooses to divest himself of his traditional role of absolute leader and classes become more permissive and student centered.

The roles approach to leadership will be discussed first, followed by the literature related to need for interaction.

The essence of the roles approach was given by Gibb (1969):

> Leadership is not usually an enduring role unless an organization is built up which enables an individual to retain the role after

> he ceases to be qualified for it. ... In the absence of such an artificial restriction, the interaction within the group is very fluid and the momentary group leader is that person who is able to contribute most to progress toward the common goal (p. 206-207).

Gibb believes that a true leader is one whose influence is accepted voluntarily by others. The legally appointed head is also respected.

This leads into a discussion of leadership from the point of view of positional power and personal power (Barnard, 1938; Bass, 1960; Cartwright, 1965; Etzioni, 1965; Gibb, 1969). Positional power is the extent to which orders are followed by virtue of their coming from a superior, the personal characteristics of the occupant of the position being irrelevant. Personal power refers to authority which depends on the recognized ability of the person regardless of the position he occupies. The formulation in Fig. 4 is adapted from Etzioni (1965).

Informal leaders (peer leaders) may arise within the group (Bowers and Seashore, 1966, 1967; Cattell, 1953; Newcomb et al., 1965; Pigors, 1935), and to the extent that the group is open they may become legitimized leaders. Within the student body, informal leaders may also arise, and the persons designated for these roles would differ

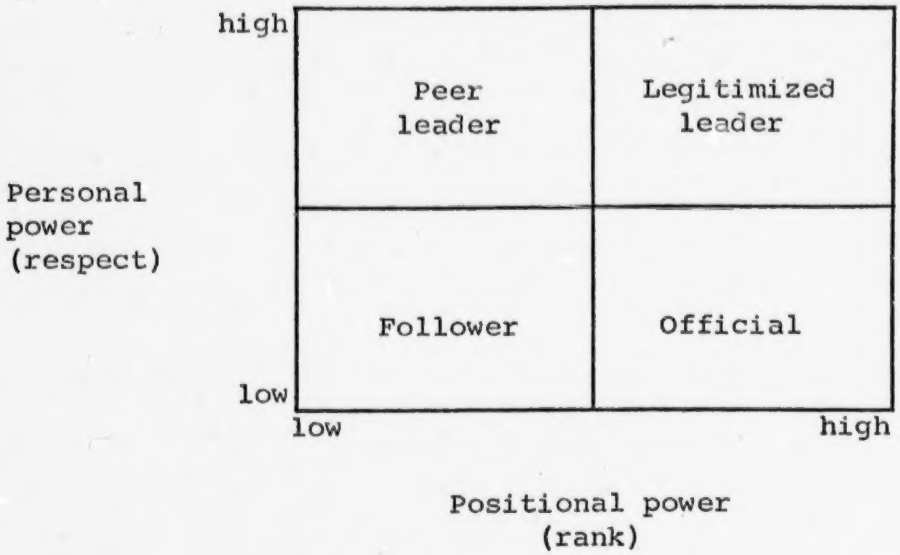

high
Peer leader
Legitimized leader
Personal power (respect)
Follower
Official
low
low
high
Positional power (rank)

Fig. 4. Positional Power and Personal Power

depending upon the changing requirements of the roles (Clifford and Cohn, 1964). Peer influence, peer group structure, and the emergence of student leaders have been discussed by Terman (1904) and Larkin (1973).

The teacher may be either an official or a legitimized leader depending upon the respect and authority accorded him by the students. The movement of a teacher from the position of an official to a legitimized leader is sometimes referred to as the legitimization of power. An official leader achieves compliance by threat and coercion, whereas group members willingly obey a legitimized leader without questioning his wisdom (Spady, 1973).

Larkin (1973) showed that intermediate grade school children granted legitimacy to the teacher when she satisfied their task and expressive needs. Teachers with only high power had lower class morale and more likelihood of rebellion; teachers high on power, tasks and expressivity were described as "superteachers." The question of legitimization has been discussed by Smith and Lutz (1964) and Spady (1973). Spady (1973) said that legitimacy develops by trust and experience:

> If a person is to suspend judgment and comply voluntarily with requests, he must believe that complying will not work to his disadvantage (p. 6).

The emergence of peer leaders is one result of the desire on the part of some students to participate in the organization of the group. It is likely to be of greater importance in studies in schools than in colleges, although role relations of graduate students has received some attention (Baird, 1969).

Less extensive but not necessarily less important is the desire on the part of students to interact in the classroom in a discussion group atmosphere and to participate in the planning of what topics will be covered. As well as participation in the classroom, there is also an extensive literature related to participation and decision sharing in workgroups and management. Some of this will be considered first.

The interest in participation and relative degree of leader and subordinate influence over the group's decisions stems from the work of Lewin and his coworkers (Lewin and Lippitt, 1937; Lewin, Lippitt, and White, 1939; Lippitt and White, 1943; White and Lippitt, 1953). Three leadership styles were recognized: In the authoritarian style, the leader makes the decisions; in the democratic style, the group decides; and in the laissez faire style, each individual decides for himself.

Superior gains for democratic groups were reported in quality of output, interest and involvement in work, and willingness to continue work in the absence of the leader (Lewin, Lippitt, and White, 1939), and in morale and initiative (Lippitt and White, 1943). Later related work showed gains on group decision making (Bennett, 1955; Levine and Butler, 1953; Lewin, 1953) and increases in loyalty, attitudes, interest, and involvement (Morse and Reimer, 1956).

Likert (1961, 1967) extended Lewin's work into the realm of management. He contended that successful leadership must involve the process of employee participation in the structuring of his work and the work environment. He conceptualized four management styles, ranging from "exploitive-authoritative" to "participative-group," corresponding to increasing employee decision making. Likert (1961) listed benefits accruing from participative decision-making: higher performance, better decisions, use of employee's creativity, restoration of human dignity, encouragement of the acceptance of responsibility, improvement of morale and team work, and acceptance of change.

However, several writers have expressed concern over the way in which "permissive" and "democratic" leaders have been labelled as good while "traditional" and "autocratic" leaders are thought of as creating bad social climates (Calvin et al., 1957). There are exceptions to the rule that democratic participative groups are always preferable and more effective than autocratic ones. One of the problems may be that groups which start out as democratic become laissez faire, with a consequent loss of direction and structure. The line between participation and laissez faire may be a fine one.

Heller and Yukl (1969) describe a 5-point scale for describing the amount of participation of group members:

leader's decision without explanation, leader's decision with explanation, prior consultation, joint decision making, and delegation. They note:

> There is a slight and possibly superficial resemblance between delegation and laissez faire leadership. However, delegation does not represent passive leadership, and although subordinates are given some freedom, the area of choice is usually delineated and constrained (p. 230).

From the writings of Gordon (1955), Maier (1965), Scontrino (1972), and Vroom (1959, 1964), it is seen that true participation includes psychological involvement, the outcomes being sufficiently important to the individual that he wants to participate and expects that the results of his participation will be used. Problems associated with participation have been discussed by Golembiewski (1965) and Strauss (1963): Individuals whose opinions have been rejected may become alienated, participation may lead to greater cohesiveness against management, it may be frustrating to those involved, and it may set up expectations of further participation which management may not be willing to satisfy.

Apart from these problems, there is also the question of individual preferences for participation (McCurdy and Eber, 1953; Tosi, 1970; Vroom, 1959, 1964; Vroom and Mann, 1960).

Vroom (1959) concluded:

> ... the most positive relationships between psychological participation and attitude toward the job are found for persons high in need for independence and low in authoritarianism. ... On the other hand, the attitudes of high authoritarian individuals and of individuals with low independence needs are relatively unaffected by this experience (p. 324).

Advantages for education of participative practices, and problems in applying them, have also received attention. Studies concerned with the teacher-principal interaction have shown positive support for participation (Caldwell and Spaulding, 1973; Chung, 1970; Guba and Bidwell, 1957). Preferences for indirect participative supervisor behavior were discussed on p. 63. Studies of student-teacher interaction have also shown that student satisfaction or learning gains are correlated with student-centered or discussion methods (Asch, 1951; Cohen and Berger, 1970; Denny, 1966; Gibb and Gibb, 1952; McKeachie, 1963; Thistlethwaite, 1960).

McKeachie (1963) and Stern (1963) have commented on different student responses to participation. McKeachie said, "... for many students democratic methods seem unorganized and ambiguous (p. 1141)." Stern said, "at least as many students feel dissatisfied, frustrated, and anxious in a nondirective classroom as consider it valuable (p. 428)." Both reviews indicate that individual student preferences exist. Participative methods run the risk of becoming unstructured and laissez faire if the instructor, while allowing student participation, does not also make clear his role and his expectations for the students (p. 123).

Two studies reported below show preferences for participative methods in education. McCarrey (1964) working with school superintendents found similar results to Vroom (1959). In the participative environment, those persons with stronger independence needs and/or lower authoritarianism were more satisfied with their jobs if given the opportunity to participate in decision making. A directive environment tended to produce satisfied persons provided they were directive individuals and rather dependent.

Wispé (1951) reported research with classes in freshmen Sociology which had been chosen to represent lecturing and group discussion methods. On the basis of responses to a personality questionnaire, he differentiated three groups of students whom he called "insecure" (52%), "satisfied" (26%), and "independent" (23%). He found no difference in final examination scores, but students generally preferred the directive method and poorer students gained more in directive classes. However, the insecure students had unfavorable attitudes toward instructors with permissive classes, satisfied students were favorable to both permissive and directive instructors, and independent students were moderately favorable to both methods but likely to direct aggression against the instructor in directive classes.

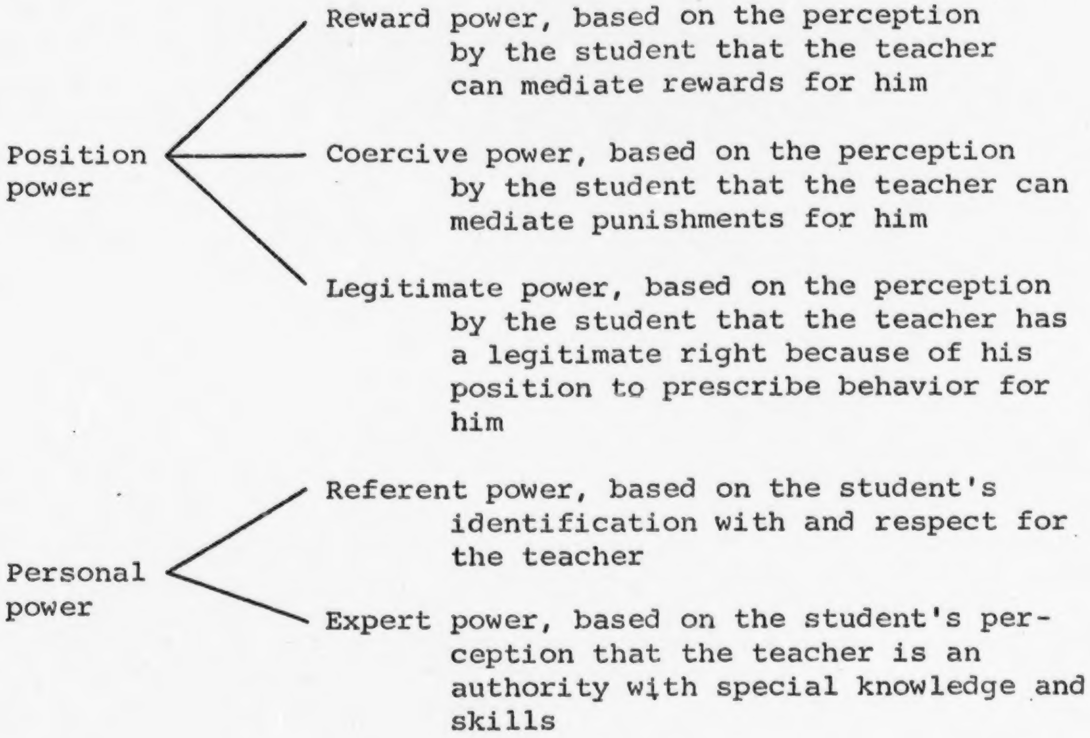
On the basis of this literature, it seems that students who have a high need for independence would describe an ideal instructor as allowing them to interact with others and to participate in class planning. An effective teacher allows participation in accordance with the needs of the particular students in that situation.

Need for Stimulation and Motivation

If students are not interested or do not want to learn, what can be done about it? This is part of a larger social question of the exercise of power where one person exerts influence over another person so that he does his bidding. A study of the bases of power can help to show what methods a teacher could use in influencing students to work at what they initially did not want to do. How much students need this influence will depend upon their initial interest in the subject and their feelings of responsibility, and would presumably be reflected in their description of ideal instructor behavior on the Motivation dimension.

Several writers have discussed the kinds of power that could be used in changing people's actions (Cartwright, 1965; Kaplan, 1964; Kelman, 1958; Larkin, 1973; Raven and French, 1958; Spady, 1973; Student, 1968; Weber, 1958). Raven and French's formulation (1958) of five bases of social power will be the one discussed here. Their definitions of reward, coercive, legitimate, referent, and expert power have been adapted for the teaching situation and are listed in Fig. 5, grouped under the heads of position power and personal power that were used earlier (p. 105). Thus the first three bases of power are available to a person solely by virtue of his position, and the other two have to be developed in his dealings with others.

These bases of power can be translated into classroom behaviors. The exercise of position power can be equated with external motivation--the student is made to work by the promise of reward or the threat of punishment and by the power invested in the teacher role. This means of motivation is much used in the giving of quizzes and assigning of grades.



- Position power
  - Reward power, based on the perception by the student that the teacher can mediate rewards for him
  - Coercive power, based on the perception by the student that the teacher can mediate punishments for him
  - Legitimate power, based on the perception by the student that the teacher has a legitimate right because of his position to prescribe behavior for him
- Personal power
  - Referent power, based on the student's identification with and respect for the teacher
  - Expert power, based on the student's perception that the teacher is an authority with special knowledge and skills

Fig. 5. Bases of Power

In interesting study by Rosenfeld and Zander (1961) has shown that not all rewards and punishments are viewed in the same light by students and instead of being motivating may have the opposite effect. Two forms of teacher rewards were differentiated by students. When rewards were showered indiscriminately, the teacher's influence was lowered; when rewards were limited to adequate performance, the teacher's influence was increased. Two forms of coercion were also differentiated: disapproval of inadequate performance, and disapproval when the performance was as good as the student felt he could do. The second had deleterious effects on both aspiration and future performance. Thus correct use of rewards and punishments requires that a teacher has some knowledge about the different abilities of his students.

Exercise of the third kind of position power, legitimate power, is illustrated when a teacher justifies authority by saying that students should be quiet or work "because I, the teacher, say so." As was discussed on p.106, this kind of statement needs to be backed up, either with the use of rewards and punishments or by acts developing referent and expert power. If rewards and punishments are used exclusively, then the teacher may become an official (Fig. 4). If referent and expert power are developed, then the use of position power is legitimized.

Whereas position power is similar for all teachers at a particular level, referent power and expert power are different and dependent on the behavior of each individual teacher. The exercise of personal power may lead to some degree of internal motivation on the part of the students. The teacher attempts to make use of individual student differences in need for affiliation, power, or achievement, and covers the material in a skillful and interesting way.

Student needs for affiliation, power, and achievement have been measured by Atkinson (1958) and McClelland (1961) using the Thematic Apperception Test (T.A.T.). Exploitation of the students' need for affiliation would lead an instructor to be warm and considerate. This kind of power is similar to that described by Carnegie (1936); the importance of such behavior to some students was discussed on pp. 98-103. In the present context, it is seen that considerate behavior may also be motivating if student needs require it.

Students' need for power might in the classroom setting be expressed as a desire to participate in discussions and take a part in the planning of procedures. This was discussed on pp. 107-113 In the present context, a teacher who recognizes students' need to participate and allows such participation might be described as motivating and increasing interest in the work.

Students' need for achievement could be utilized by the teacher describing expectations for the group and encouraging greater effort. Verbal references to learning goals would be seen as motivating. In this connection, reference is made to Lewin's discussion of ego-involvement (1956). Teachers need to keep tasks for students within a range of uncertainty, where both success and failure are possible. Students also vary in their ability to set their own goals and follow them. Koenig and McKeachie (1959) reported that women high in need for achievement preferred independent study to lectures.

Another possibility for motivation behavior is for the teacher to demonstrate expert power in his skillful treatment of the material. This may be by lecture or by organizing discussion groups but if it demonstrates that the teacher is competent, then it probably will be described as motivating by the students. A competent teacher does not have to know all the answers. The aim is to make use of student curiosity and "desire to know." For students with a low threshold of desire to know, mere presentation of a problem may be sufficient motivation for them to try to understand it, but for others more overt action on the part of the teacher may be necessary to make the work interesting.

The motivating effect of encouraging comments from the teacher was shown by Page (1958). High school and junior high school teachers graded objective tests of their students and then randomly assigned each paper to one of three groups. One group received just grades, another group received grades and standardized comments, and the third group received grades and personal comments designed to encourage each particular child. On the next objective test, groups two and three out-performed group one. Personalized comments seemed to have a greater effect than the standardized comments. The greatest improvement was found in the failing students in the third group, who received an encouraging personal note.

From the literature and this discussion, it is concluded that students are likely to have different requirements for motivation from the instructor. The actual instructor behavior described as motivating will also differ from student to student. An effective teacher utilizes different bases of power and exploits individual differences in the needs of the particular students in a situation in order to motivate learning.

Need for Structure and Order

Students differ in their preferences for structure and order, both in the presentation of material and in the definition of roles and procedures.

There is some support for the suggestion that there is a basic requirement of a certain degree of order and clarity in the presentation of material (pp. 51-54). But there is also research to show that organization of material is not all that important. Petrie, in his review of research related to informative speaking (1963), found some variables of presentation led to better understanding: meaningfulness of the message, verbal emphasis, development of main ideas, and the speaker's credibility and method of delivery, but not organization and emphasizing of important points. It may be that the lack of organization in oral communication is compensated for by cues provided in the delivery (Gage, 1969).

But what of programmed instruction? Hilgard and Bowers (1966) reported on five studies comparing the immediate and delayed posttest results of an ordered sequence with a random ordering: Three showed no difference, one showed an immediate advantage for the ordered sequence but none on a delayed test, and only one showed a clear advantage for the ordered sequence. Natkin and Moore (1972) examined other studies of this nature, and reported that the most significant finding of the majority of the studies was that random ordering did not adversely affect terminal performance.

There are many rival hypotheses for these findings: The original "ordered" sequence may not have been the best logical order for all subjects; there may have been a lot of repetition of critical material so that subjects could pick up the argument; some subjects may have been able to remember previous material and reconstitute the logical order; the ordered sequence may have been repetitious and boring, and some students may have found a random order more challenging and interesting, especially if they were of high ability. Allen (1971) found that students most likely to gain more from individual work with computer assisted instruction than from lectures felt that classes under traditional instruction usually spent too much time on each topic, did not dislike taking tests, and reported that they tended to solve problems without assistance.

In summary, some students probably prefer to structure their own material rather than just take someone else's structure. This desire may be stronger in older students or in those of higher ability, and may partially account for the preference of these students for more independent learning and student-centered methods (McLeish, 1966; Wispé, 1951).

There is theoretical and empirical support for the statement that a group needs a certain amount of structuring, definition of roles, and setting of expectations. Stogdill (1959) said:

> As the structure of positions in a group becomes more highly differentiated and as roles become more clearly defined, the members experience a greater area of freedom because they know the bounds within which they can act without unfavorable consequences for themselves or for the group as a whole (p. 211).
>
> Granting freedom of action cannot be effective if roles are so poorly defined that the members do not know what is expected of them (p. 242).

Definition of roles requires the leader or teacher to set out the limits of behavior expected from both himself and the group members or students. In the teaching setting, this takes the form of discipline and control and setting of learning expectations (pp. 72-73). Correlations of this behavior with effective outcomes have been found (Rosenshine and Furst, 1971; Ryans, 1961). Spaulding (1933) reported that in the elementary school, pupil self concept, achievement, and creativity were moderately correlated with teacher behavior described as businesslike lecture method with insistence upon attention to the task and conformity to the rules of procedure.

However, there seems to be a curvilinear relation between degree of structure and effective outcomes. Stogdill (1959) said:

> Morale is high when the members are ... operating under optimum rather than minimum or maximum degrees of role structure and leadership control (p. 211).

Lack of structure is described as role ambiguity. In general, it has been found that role ambiguity correlates negatively with effective outcomes.

Baird (1971) described ambiguity as poor definition of expectations, of how much and what were the payoffs in the class, and how clear the assignments were. Using a questionnaire with 2,670 students in two year colleges, he found the ambiguity scale negatively related to faculty ratings and students' sense of progress and satisfaction: ambiguity appeared to be almost synonymous with poor teaching.

Similar results were reported by Kahn et al. (1964) in a large organization. He found that role conflict and ambiguity were related to employee's low job satisfaction, low confidence in the organization, and high tension. Employees in conflict situations tended to withdraw, either behaviorally or psychologically. These deleterious effects of ambiguity were also found by Baird (1969) working with graduate students. House and Rizzo (1972) and Rizzo et al. (1970) supported the conclusion that role ambiguity is negatively valent to subordinates.

House (1971) and Rotter (1971) have made suggestions as to why motivation and satisfaction should be negatively related to ambiguity. In an ambiguous situation, it is not clear to a person how his behavior is related to effective outcomes. He has to guess as to whether, if he does a certain thing, it will be rewarded. This creates a lack of certainty and a feeling of helplessness. Removal of expectations as described by Stogdill (1959) does not create freedom, it just creates uncertainty.

People differ in how much they can tolerate ambiguity and how much they need structure (Fouriezos et al., 1953). Heil et al. (1960), working at the elementary school level, found the importance of consistency, structure, routine activities, and orderliness--especially for students described as "opposing" and anxious. Grimes and Allinsmith (1961) studied children described as compulsive and anxious. They found compulsive children did better in structured conditions but were under no disadvantage in unstructured conditions. Anxious children did as well as non-anxious children under structured conditions, but had their achievement impeded in unstructured settings. Children who were both anxious and compulsive did very well in the structured setting.

Dowailiby and Schumer (1973) investigated the effect of two teaching methods on manifest anxiety in subjects enrolled in two separate sections of an introductory psychology course. Each section was either student-centered or teacher-centered following criteria laid down by the investigators. Results on examinations revealed that the teacher-centered mode optimized learning for high-anxious students, while the student-centered approach resulted in superior performance for low-anxious students.

McKeachie's observation (1963) that "for many students democratic methods seem unorganized and ambiguous (p. 1141)" may either indicate that those classes were lacking in structure and expectations, or that the students had a higher need for structure than was provided. The difficulties encountered by the progressive education movement of the 1930's and 1940's may have been related to the same problem. In the desire to let the child find his own way, too little guidance and structure may have been given. The question is raised again by the present growing interest in "open education." Effective teachers for open education do not need to show less structure--they need greater administrative and managerial ability to keep track of children and more experience in setting expectations for individual children.

Excessive structure has also been found to be negatively related to student interest, satisfaction, and assessment of effective teaching. Reed's study (1962) was reported on p. 51. Teachers described by students as high or low on the Demand dimension (degree of expectations for high standard of performance) had students with lower reported science interest than teachers with medium demand. This negative aspect of structure was described as Difficulty by Magoon and Bausell (1970), as Negative Affect by Costin (1971), and as Overload by Isaacson et al. (1964). It is again interesting to compare this with Lewin's ego-involvement (1956): a competent teacher sets realistic expectations for students. Demanding too much may be as bad as not setting sufficient expectations.

An effective teacher recognizes individual student preferences and provides the degree of structure appropriate to the particular situation.

Summary of Research on Ideals and Satisfaction

Student differences have now been described for satisfaction of basic needs, need for participation, need for stimulation and motivation, and need for structure and order.

These have been linked to the corresponding dimensions of instructor behavior: Consideration, Interaction Facilitation, Motivation, and Work Facilitation. These student needs are expressed in descriptions of ideal instructor behavior on the four dimensions. Research on ideals and the measurement of satisfaction from the fit between ideal and actual behavior is summarized below.

In 1971, Levinthal et al. wrote:

> So far as we can tell, there are no published reports on college teaching which assess students' ideals directly. There is, however, a report to the Office of Education (Rickfelder, Brown & Milholland, 1968) of a study in which students completed ideal and actual Q-sorts about college teachers' behaviors (p. 105).

Levinthal et al. (1971) asked 263 undergraduate psychology students to rate nine items of an instructor's behavior on a 5-point frequency scale and each possible frequency on a 3-point desirability scale. A rating of instructor's overall teaching ability and background information on students were also collected. Except for the item "He was friendly," the ideal responses did not tend to be unanimous. For three items, "Students argue with one another or with the instructor, not necessarily with hostility," "He assigned a great deal of reading," and "He was permissive and flexible," the frequency desirability curves were inverted U-shaped. These results taken together illustrate that student ideals differ and that the same behaviors are seen as highly desirable by some students and unacceptable by others.

Other research concerned with assessing ideals in the college classroom are those of Hall (1970) and Sanders and Lynch (1973). Hall (1970) collected ideal and actual descriptions of teacher style from 238 students in 22 small undergraduate classes (class size < 30) in humanities and social sciences, using a 35-item questionnaire adapted from Fleishman's Leader Opinion Questionnaire (1957b). The purpose of his study was to see whether descriptions of ideal teaching style, or actual style, or difference scores between the two, best predicted student learning outcomes as measured by responses to a perceived learning instrument. He found the overall discrepency correlated best with course satisfaction ($r = .42$) and between .12 and .30 with other assessments of perceived learning. Out of 49 possible correlations of actual teacher style or difference scores with learning outcomes, 26 favored actual teacher style and 21 favored difference scores in the sense of giving higher correlation coefficients. Therefore a priori reasoning that discrepancy scores should be better predictors was not supported. Ideal teaching style showed very small variance, and very low correlations with learning outcomes. Hall concluded that for difference scores to be appropriate measures, students need to be aware of their own ideals. He found that the dimension of instructor behavior that correlated best with perceived learning was actual Instructor Contribution: "He is well prepared for class" and "He offers new approaches to problems."

Sanders and Lynch (1973) used a 20-item instrument with six graduate education classes, each with eight students, taught by three instructors (two classes by each instructor). The instrument was distributed at the beginning of the class period and students responded on a 5-point scale as to how they would like the instructor ideally to behave. Ten minutes from the end of the period, they responded again on a 5-point scale to describe the instructor's actual behavior. Frequencies of discrepancies of 2 points or more between ideal and actual were found for each class, and demonstrated discrepancy differences between and within instructors. Items on which there were the most discrepancies were "My participation in class was ...," "The amount of class discussion was ...," "The number of audiovisual materials used in the course was ...," and "The amount of feedback given to students during the course was ...."

These studies illustrate that student ideals do differ. But an important practical question is "What ways are available to measure discrepancies between ideal and actual behavior?" Hall (1970) used difference scores (D_i) between ideal and actual responses on each dimension, and an overall fit calculated using the formula

$$D = \frac{\sqrt{\sum_{i=1}^{7} D_i^2}}{7} .$$

Sanders and Lynch (1973) found the items on which there was more than a 2-point discrepancy between ideal and actual, and used the frequency of these in their analysis.

Wanous and Lawler (1972) investigated nine operational definitions of job satisfaction. They asked 208 employees in 13 job locations to rate the present job on each of 23 items on 7-point scales using five different criteria: Is now, Should be, Would you like, How important are they to you, and How satisfied are you. The nine operational definitions of job satisfaction were developed from these criteria, and the correlations found between each of these and two traditional measures of job satisfaction, an overall assessment of satisfaction on a 7-point scale and the mean of scores from "How satisfied are you?" (mean facet satisfaction). All correlations were significant at the .001 level. Mean facet satisfaction correlated best with Σ(Importance x Facet satisfaction) (r = .92), Σ(Is now) (r = .82), and Σ(Importance x Is now) (r = .74). The correlation with Σ(Would like - Is now) was -.58. They concluded that there was little difference between unweighted (Is now) definitions of satisfaction and those weighted by the importance of facets or by taking "Would like" into account. This result is similar to that of Hall and perhaps reflects a small range of differences in importance and preferences of the people involved.

Locke (1969) has argued for the use of a discrepancy definition of job satisfaction. He computed satisfaction as the difference between fulfillment (Is now) and desires (Would like). He objects to the use of importance weighing on theoretical grounds; he argues that the discrepancy between fulfillment and desire already takes the importance of the behavior into account and so multiplying by importance is redundant.

Cronbach (1970) has detailed theoretical objections to the use of difference scores, stemming from the fact that such scores include error from each of the measures used. The use of the frequency of discrepancies of 2 points or more (Sanders and Lynch, 1973) reduces this problem somewhat. This measure of satisfaction could be further refined by considering the proportion of matches (items with less than 2 points discrepancy) on each dimension instead of the absolute number.

Another theoretical consideration, this time related to student needs, is the necessity to allow students to describe which instructor behaviors are relevant and which are not. Hollander and Julian (1969) said that there had been:

> a widespread failure to treat the characteristics of the leader as they are perceived--and, what is more, as they are perceived as _relevant_--by other group members within a given setting (p. 391).

Current evaluation instruments assume that all the behaviors described are important (at least to some degree) to all the students. But in some situations, some items might well be considered irrelevant--they neither add to nor detract from the description of an ideal instructor. Collection of student ideals should allow students to describe an item of behavior as "irrelevant"; this would allow an evaluation instrument to be used across a variety of situations.

An item described as irrelevant would not be included in the calculation of the proportion of matches proposed above. In this way, an instructor would be judged only against those items considered relevant by the students in a particular situation. This method of calculating satisfaction, for which no precedent has been found in the literature, is further discussed on pp. 175-177.

The question of whether a fit between ideal and actual instructor behavior leads to greater learning does not seem to have received attention. The literature on the effects of the person-environment fit upon human performance and satisfaction was reviewed by Pervin (1968). His main focus was on the fit between the student and his college. His findings indicated that discrepancies between student perceptions of themselves and of their college were related to dissatisfaction with the college. Hall (1970) found generally low correlations between difference scores of ideal and actual teacher style and perceived learning. In his conclusion, he said that perhaps a perfect fit is not the most desirable condition: A moderate level of strain between ideal and actual styles might be more likely to lead to learning and growth.

Although no research has been found concerned with changes in ideals, there is some related literature that might have some bearing on the subject. For example,

Stogdill (1959) wrote:

> ... The group also exerts effects upon each member which structure his expectations and interactions, and pattern his performance to some extent in conformity with the normative expectancies of the group (p. 122).

Festinger (1950, 1957) has proposed a theory of cognitive dissonance which says that when a person is confronted by cognitive events which cannot be explained, then activity occurs which reduces the dissonance. This theory applied to the classroom situation suggests that a discrepancy between ideal instructor behavior as described by the student and the actual instructor behavior might be reduced by the student changing his ideal to conform to the actual behavior. This would, however, only be expected to occur if the student liked the instructor's actual behavior. If he did not like the behavior, there might be an accentuation of the difference between descriptions of ideal and actual behavior.

In as far as group consensus occurs more readily in discussion groups (Bennet, 1955; Levine and Butler, 1953; Lewin, 1953), it might be expected that students' ideals would come closer to actual behavior in a student-centered situation. Research into changes in student ideals would need to collect information on the degree of student involvement and discussion to see if these variables were related to change.

Summary of the Situational Approach

At the beginning of the discussion of the situational approach, reference was made to Lewin's formula $B = F(P, E)$ (Lewin, 1946). This formula may now be interpreted to read, "The effective behavior of a leader or teacher is a function of the characteristics of the leader or teacher and of the situational variables in that environment." An effective teacher will be sensitive and responsive to the situational variables (Campbell et al., 1970; Cartwright and Zander, 1953; Tannenbaum and Schmidt, 1958), although it is recognized that their demands may sometimes be conflicting and that actual behavior at a certain time will have to be a compromise between various pressures.

The situational approach is more realistic than the great man approach, the traits approach, and the behavioral approach. It recognizes the interdependence of the leader, the group members, and the pressures of the environment. The difficulty lies in isolating a few variables at a time so that research studies can be undertaken. For example, in the present study, of the situational variables recognized as important--tasks and desired outcomes, organizational pressures, environmental pressures, and group member ideals and expectations--only the latter is being considered. This initial simplification is considered a necessary step in building up a fuller theory of teacher effectiveness.

CHAPTER III

METHODS AND PROCEDURES

On the basis of the review of the literature in Chapter II, various leader and teacher behaviors and dimensions were identified that had been linked in some correlational or experimental studies with effective group outcomes or learning achievement. This information was used in the development of the trial form of the Instructor Behavior Description Questionnaire (IBDQ). This instrument was used in a pilot study with classes of Psychology 100 undergraduates.

The instrument was then revised for use in the main study with twelve graduate classes chosen from a variety of subject areas. The number of students in each class is shown in Table 25 (p. 191). The final form of the IBDQ was administered on two occasions seven weeks apart; ideal and actual instructor behavior descriptions were collected, together with data on student characteristics and course structure. Analysis of these data was carried out in accordance with the problem statements on pp. 16-18 and hypotheses on pp. 18-19.

The plan followed in this chapter is as follows:

1. Development of the trial form of the IBDQ
2. Description of the pilot study
3. Design and procedures for the main study
4. Data analysis for the main study.

Development of the Trial Form of the IBDQ

Background

As was discussed in Chapter I (pp. 12-14), college evaluation instruments rarely have a theoretical base; they tend to be a collection of items covering a narrow range of instructor behavior. In Chapter II (pp. 42-43), there was a discussion of the development of the Leader Behavior Description Questionnaire (LBDQ), and other leader description questionnaires were described which have shown clearly defined factors or dimensions of behavior (Bowers and Seashore, 1966, 1967). One purpose of the present study was to use the dimensions of leader behavior, and, by examining a variety of leader and teacher behavior instruments, to develop a new instrument which would include more of what is known about instructor behavior.

The four-dimension solution as described by Bowers and Seashore (1966, 1967) was taken as a starting point. Their definitions of Support, Interaction Facilitation, Goal

Emphasis, and Work Facilitation are given on p. 70. It was decided to take each dimension in turn, to examine definitions of other authors who had identified similar dimensions, and to list the items they had used for the dimensions. From these definitions and lists, aspects of the dimension were identified, and statements describing these aspects were written. The term Consideration is used instead of Support and Motivation instead of Goal Emphasis.

Items to Describe Consideration

A basic decision had first to be made whether to include items on the Consideration dimension that involved student interaction and participation. Several authors who have described leader behavior (Fleishman, 1957a; Fleishman and Harris, 1962; Halpin, 1957a, 1966; Katz and Kahn, 1951) have included items concerned with delegation of authority and participation of subordinates on this dimension. Similarly, "democratic" and "adaptable" are included in the understanding, friendly, and responsive X_o dimension of Ryans (1960), showing that participation was included in considerate behavior.

However, Yukl (1971) has questioned whether participation is considerate behavior if the group members do not wish to participate. He suggested that Consideration should be restricted to friendly, supportive, and considerate behavior (and their opposites; hostile, punitive, and inconsiderate). It has been decided to follow this suggestion.

The following preliminary definition of Consideration was developed from studies listed in Tables 1 - 6 (pp. 67-77):

> Consideration is behavior that is friendly and fair and increases the student's sense of personal worth. The teacher is easy to talk to, understanding of personal needs, and involved in the work of the class.

The different aspects of Consideration that were identified are listed in Table 7 together with the items used to describe them. The numbers are the item numbers used on the trial form of the IBDQ (Appendix A).

Items to Describe Interaction Facilitation

From the studies listed in Chapter II, Interaction Facilitation was seen to be concerned with creating and maintaining a network of satisfying interpersonal relationships. Leadership studies mention facilitation of communication between group members and reduction of conflicts within the group, while teaching studies speak of student

TABLE 7

ITEMS USED IN THE TRIAL FORM OF THE IBDQ TO DESCRIBE THE CONSIDERATION DIMENSION OF INSTRUCTOR BEHAVIOR

Aspect of Dimension		Item
Friendly	Friendly	9. Is friendly and approachable.
	Pleasant	52. Makes it pleasant for me to be in class.
Easy to talk to	Feels at ease	46. Makes me feel free to ask questions.
	Willing to listen	25. Is willing to listen to suggestions I might make.
Considerate of feelings	Inconsiderate[a]	48. Changes assignments without consulting the class.
	Tactful	44. Is considerate of my personal feelings.
Understanding and involved	Takes account of needs	54. Helps me with my personal problems.
	Uninvolved[a]	51. Avoids individual contacts with students.
	Involved	22. Is willing to learn with us.
Increases sense of personal worth	Rewards	31. Expresses appreciation when I do good work.
	Punishes[a]	12. Criticizes me in a destructive way.
	Trusts	45. Trusts me.
	Personal regard	20. Calls me by my name.
Fair	Fair in assessment	35. Is fair in grading my work.
	Shows favoritism[a]	18. Shows favoritism to some students.
	Makes exceptions for himself[a]	10. Makes exceptions for himself that he doesn't allow me to make.

[a] Negative.

involvement, use of student ideas, and student-centered discussion groups. From this literature, the following preliminary definition of Interaction Facilitation was developed:

> Interaction Facilitation is behavior that encourages interactions among students, reduces actual and potential conflicts, and keeps the class working as a team.

The different aspects of Interaction Facilitation that were identified are listed in Table 8 together with the items used to describe them. In the trial form of the IBDQ, items on this dimension were concerned only with student-to-student interaction. This was a rather narrow view that will be discussed again later (pp. 154 and 167). Items concerned with allowing students to help in setting learning goals and with instructor-to-student interaction were included within the Motivation dimension, following the definition of Goal Emphasis given by Bowers and Seashore (1967).

Items to Describe Motivation

From the studies listed in Chapter II, Motivation was seen to be concerned with gaining members' acceptance of group goals. Leadership studies mention enthusiasm for achieving excellent performance, emphasizing the mission or

TABLE 8

ITEMS USED IN THE TRIAL FORM OF THE IBDQ TO DESCRIBE THE INTERACTION FACILITATION DIMENSION OF INSTRUCTOR BEHAVIOR

Aspect of Dimension		Item
Encouragement of interaction	Talking together	34. Sets aside class time for inter-student discussions.
	Sharing	24. Encourages us to help each other outside of of class hours.
	Joint projects	42. Lets us work on projects and assignments together.
Reduction of tension and conflicts	Actual	30. Settles conflicts if they arise in class.
	Potential[a]	1. Makes derogatory remarks about some students to the others.
	Praise	29. Praises some students to the others.
	Expectation	47. Wants students to get along together.
	Jealousy	40. Makes sure some students are not jealous of other.
Physical arrangements	Meetings/seating	13. Arranges the room so students can discuss together.

[a] Negative.

job to be done, and keeping members' attention on the goal, while teaching studies list stimulating, imaginative, and original presentations, contagious enthusiasm, and emphasizing seeing beyond the limits of the course. For a definition of Motivation, it was decided to follow closely the Goal Emphasis definition given by Bowers and Seashore (1967):

> Motivation is behavior that creates, clarifies, and changes learning goals and that gains student acceptance of these goals, by stimulating interest and initiative, by being enthusiastic, and by encouraging extra effort by looking above and beyond the immediate work.

The different aspects of Motivation that were identified are listed in Table 9, together with the items used to describe them. The first group of items concerned with creating group goals form a continuum from a great deal of student involvement to none. These items were included within Motivation rather than within Interaction Facilitation as it was thought that student involvement would contribute toward changing personal goals into directions consistent with learning.

Items to Describe Work Facilitation

From the studies listed in Chapter II, Work Facilitation was seen to be concerned with structuring the situation for the attainment of group goals. The definition

TABLE 9

ITEMS USED IN THE TRIAL FORM OF THE IBDQ TO DESCRIBE THE MOTIVATION DIMENSION OF INSTRUCTOR BEHAVIOR

Aspect of Dimension		Item
Creating group goals	Member freedom	6. Asks us what topics we would like to cover.
	Cooperation	32. Plans course objectives jointly with students.
	Persuasion	3. Shows me that the topics being discussed are important.
	Direction[a]	43. Is reluctant to change the course objectives.
Clarifying group goals	Relation of work to goals	41. Explains how the topics being discussed relate to the objectives of the course.
Changing group goals	Adaptability	2. Adapts class sessions to our difficulties and interests.
	Joint venture	11. Encourages me to contribute my knowledge and experience.
Gaining acceptance of group goals	Interest	19. Makes the work interesting for me.
	Variety	21. Supplements the text from other sources (other texts, visual aids, etc.)
	Enthusiasm	37. Shows enthusiasm for the subject.
	Motivation	17. Motivates me to do my best work.
Stresses goals	Above goals	7. Encourages me to spend extra time and effort on my work.
	Beyond goals	14. Emphasizes seeing beyond the limits of the course.
Provides feedback	Encouragement	27. Provides me with informational feedback and encourages greater effort.
Encourages initiative	Initiative	28. Encourages me to show initiative.

[a] Negative.

developed for Work Facilitation is given below:

> Work Facilitation is behavior that structures the situation for effective learning by such activities as definition of roles, planning of procedures, effective presentation, and providing resources such as materials and expert knowledge.

Several teaching studies reviewed in Chapter II, p. 73, differentiated managerial and technical functions within work facilitation. Managerial functions were described as class organization, while technical functions were described as content organization. Managerial functions or class organization includes two main groups of behaviors, one or both of which might be recognizable in a particular setting. These are definition of roles, and planning procedures and presentations. Technical functions or content organization constitutes what is generally known as expertise or subject matter competence. Although it is recognized that these groups of behaviors have considerable overlap, they still seem to be conceptually separate. The relation between these terms, and the kinds of behaviors that could be included, are shown in Fig. 6.

Only the first of these needs amplification. Definition of roles was discussed on pp. 122-125 and has received some attention in leadership studies (Halpin and Winer, 1957; Stogdill, 1963). The LBDQ Form XII (Stogdill, 1963) was

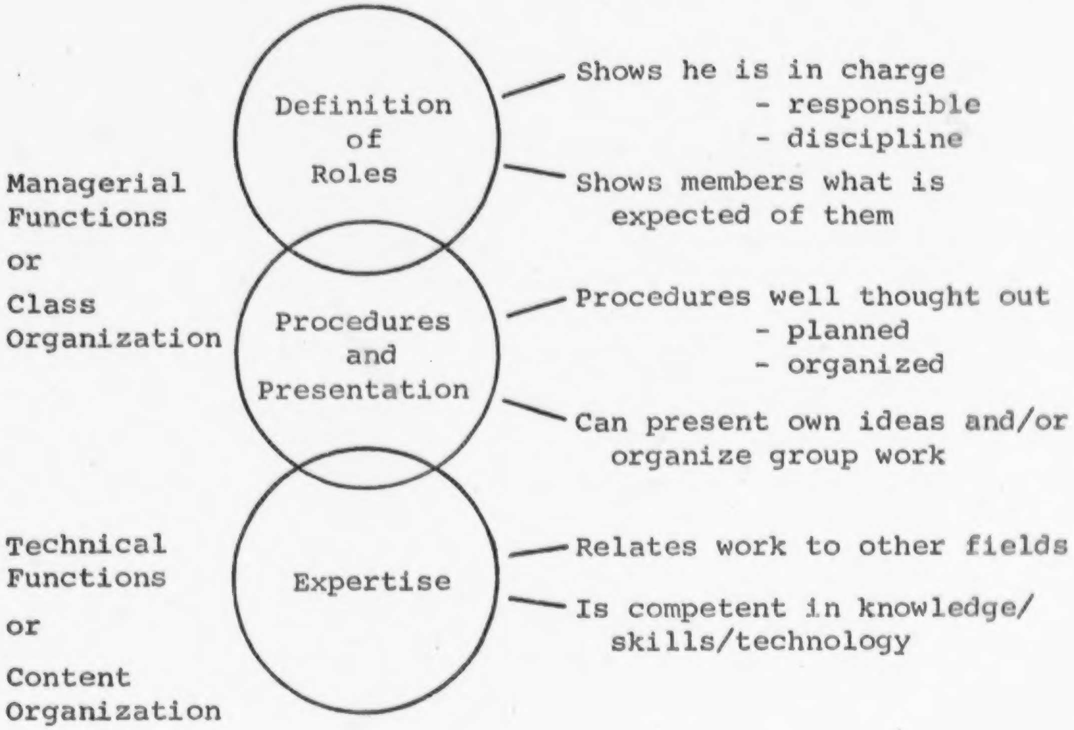

Definition of Roles
Shows he is in charge
- responsible
- discipline
Shows members what is expected of them
Managerial Functions
or
Class Organization
Procedures and Presentation
Procedures well thought out
- planned
- organized
Can present own ideas and/or organize group work
Technical Functions
or
Content Organization
Expertise
Relates work to other fields
Is competent in knowledge/ skills/technology

Fig. 6. The Relation between Aspects of Work Facilitation

found especially pertinent in this regard and ideas from the Representation, Initiation of Structure, Role Assumption, and Superior Orientation scales were useful in clarifying ideas about leadership roles. For the teaching situation, it was decided to omit items concerned with speaking and acting on behalf of the group and having influence with superiors. It was interesting to find a close similarity between the leadership definition of roles and the control and discipline functions of elementary and secondary school teachers.

The different aspects of Work Facilitation that were identified are listed in Table 10 together with the items used to describe them.

The Trial Form of the IBDQ

As a result of the above procedures, 54 items describing instructor behavior were available, based on four dimensions. It was recognized that some items might be considered to lie on two or more dimensions. For example, the item "Encourages us to help each other outside of class hours," although assigned to Interaction Facilitation, could also be motivating and, if students wanted to work together, might also be considerate of personal feelings. That some items might lie on several dimensions was considered an inevitable consequence of human behavior.

The items were arranged in random order using a table of random numbers and are given in Appendix A. The items were written in two forms, one appropriate for describing ideal instructor behavior and the other for actual instructor

TABLE 10

ITEMS USED IN THE TRIAL FORM OF THE IBDQ TO DESCRIBE THE WORK FACILITATION DIMENSION OF INSTRUCTOR BEHAVIOR

Aspect of Dimension		Item
Definition of roles	Hesitant[a]	16. Hesitates about taking a leadership role in the class.
	Shows he is in charge	4. Makes clear his role in the class.
	Respect	5. Expects me to take notes when he talks.
	Expectations	26. Lets me know what he expects of me.
Procedures and presentation	Organized	38. Shows us he is well organized.
	Schedules	36. Schedules the work so things get done at the right time.
	Anticipates	39. Is able to answer my questions.
	Puts over his own ideas or organizes group ideas	53. Presents material so I can understand it. 15. Uses effective teaching methods for this course. 33. Organizes effective discussion groups.
Expertise	Relates own to other fields	50. Links course material to laboratory, clinical or field experiences.
	Competence	8. Inspires my confidence in his knowledge of the subject.
	Resources	23. Indicates where relevant information not dealt with in class can be found.
	Help with work	49. Has adequate office hours for consultation and assistance.

---

[a] Negative.

behavior. A 5-point scale of importance was used for the ideal part of the instrument, with an option for the student to show that he considered the item irrelevant to the description of an ideal instructor. This was to allow for individual student preferences in describing ideal behavior. A 5-point scale of frequency was used for the actual part of the instrument. The frequency alternatives for actual behavior were intended to correspond to the importance alternatives for ideal behavior. This correspondence was used in the main study to define satisfaction (pp. 175-177).

Also included on the instrument were five items: one for overall instructor assessment, and one keyed to each of the dimensions used in its development (dimension tags). These were included to clarify the results of the later factor analysis.

Description of the Pilot Study

The pilot study was conducted to see how well the items and dimension tags would load on the a priori dimensions, and to find out which items might need revising. The pilot study was conducted during Winter Quarter 1973.

Procedures for the Pilot Study

A readily available sample of undergraduate students in Psychology 100 was chosen. It was decided to work through the faculty coordinator, who explained the project to his teaching associates. They agreed to distribute the questionnaire and collect the answer sheets.

Twenty-five teaching associates gave out the trial form of the IBDQ (Appendix A) to every student in their classes, who were asked to take it home and return it on a specified date. Distribution was in two installments, and because of unavoidable delays, some associates received their instruments rather late in the quarter. Altogether, about 1,500 instruments were given out.

The first returns from five teaching associates (79 students) were analyzed and formed the basis on which revisions to the instrument were made. These 79 students represented a 27% return rate from those five classes. A further 188 answer sheets were received later from another twelve teaching associates (also a 27% return rate) and were also analyzed.

Students were instructed to enter their responses directly onto machine-scorable answer sheets. On ideal instructor behavior (items 1-54), students were asked to leave blank the items which they considered irrelevant. Students were also asked to indicate which items they did not understand. When the sheets were returned, they were taken to the Office of Evaluation where options A-E were punched on cards as 0-4. These data were then transformed using the computer program in Appendix K, so that 0-4 became 5-1 and blanks were converted to 0 on the ideal instructor description and to 3 (the mid-point of the scale) on the actual instructor description.

Factor Analysis of Actual Instructor Behavior Descriptions (Pilot Study)

A preliminary factor analysis of the actual behavior descriptions in the first 79 returns was made using the BMDO3M program. Six items that were poorly loaded and/or that had been marked by several students as difficult to understand were omitted when the complete returns were analyzed. The ideal part of the IBDQ could not be analyzed because of the presence of the "irrelevant" response category.

The factor analysis of all 267 returns showed that four factors accounted for over 37% of the variance. The factor loadings, eigenvalues, and percentage of variance accounted for by each factor are given in Appendix B, and the "best" items are illustrated in Fig. 8 (p.168). Items not included in Fig. 8 had multiple loadings according to one of the following criteria:

1. All loadings less than .40
2. Loadings above .30 on three factors
3. Loading of .20 or more on three or more factors and no loading greater than .50.

The factor structure is discussed here; comparison with the results of the main study will be found on pp.167-170.

The factor structure of the best items may be compared to the a priori dimensions. Items originally assigned to the Consideration dimension (9, 10, 31, 35, 48, 51) mostly loaded on factor III. Most of the items originally assigned to Interaction Facilitation (1, 13, 24, 34) and some of the Motivation items concerned with student participation (6, 11, 32) loaded on factor II. Most of the other items from Motivation (3, 7, 17, 19, 27, 28, 37) had their highest loadings on factor IV, but some also had significant loadings on factor I. Most of the Work Facilitation items (4, 8, 15, 24, 26, 33, 36, 38, 39) had their highest loadings on factor I, but some also had significant loadings on factor IV.

The major loadings of the dimension tags are shown in Table 11.

TABLE 11

MAJOR LOADINGS OF DIMENSION TAGS (PILOT STUDY)

Dimension Tag	A priori Dimension	Factor Loadings[a]
This instructor shows kindness, consideration, and friendliness	Consideration	.55 on III
This instructor arranges the class so students get to like each other and work together	Interaction Facilitation	.35 on II .35 on IV
This instructor motivates me to do my best work	Motivation	.54 on IV .46 on I
This instructor is organized, knows his subject, and can put it over	Work Facilitation	.81 on I

[a] Loadings of more than .30.

From the loadings of the dimension tags and the items describing actual instructor behavior, factor III can be identified as Consideration and factor I as Work Facilitation. Factor II contains items from both the original Interaction Facilitation dimension and the original Motivation dimension. This factor will be called Interaction Facilitation, but it is now seen to include interaction between students and the instructor and participation in planning learning goals (p.142). Items loading highly on factor IV identify it as Motivation, but in a rather restricted sense. In a wider sense, motivation behavior is regarded as part of work facilitation and interaction facilitation.

Considering that the data were only a 27% return, these results are considered to lend considerable validity to the original formulation of the four dimensions.

Revision of the Trial Form of the IBDQ

Items that students had marked as difficult to understand were examined. On the basis of the students' feedback and the factor loadings, six items were omitted (16, 18, 21, 30, 42, and 45). Item 50 was rewritten, and item 51 was changed from the negative to the positive form. It would have been possible to include on the final form of the IBDQ just the 29 best items shown in Fig. 8, but as these had been derived from freshmen undergraduates, it was thought desirable to use the larger number of items in case the factor structure would be different for graduate students.

The four items written to key to the four a priori dimensions (items 110-113 on the trial form) had helped to clarify the meaning of the factors and dimensions in the pilot study. It was considered that the factors could now be identified without their use, so they were omitted from the final form.

Forty-eight of the original 54 items from the trial form of the instrument were randomly ordered to make up the final form of the IBDQ. The correspondence between the item numbers on the trial and final forms is given in Appendix C, and the final form of the IBDQ in Appendices D and E.

Items to collect information on other variables hypothesized to be related to descriptions of ideal and actual instructor behavior were also written and included in the instruments in Appendices D and E.

Design and Procedures for the Main Study

The final form of the instrument was used on two occasions with twelve graduate classes. This section describes:

1. Sampling procedure for the main study
2. Data collection
3. Coding and scoring.

Sampling Procedure for the Main Study

As it was not feasible to use a large random sample of graduate classes, it was decided to use a small number selected from a variety of subject areas. Three fields were first chosen to represent a broad spectrum of offerings: Psychology, Science, and Language. Within each field, two subject areas were chosen so that some might represent an academic speciality, i.e., Psychology, Physics, and English, while others, i.e., Educational Special Services, Science Education, and Humanities Education, were within the College of Education. It was expected that during undergraduate work students in, for example, Psychology and Educational Special Services would have taken similar courses and yet have now, as graduate students, self-selected themselves into different areas.

The Ohio State University Course Offerings and the Master Schedule of Classes for Spring Quarter 1973 were consulted, and four graduate courses within each subject area chosen in which the enrollment was expected to be between 10 and 20. This restriction was imposed in order to reduce any systematic effect due to class size, while allowing the possibility of a variety of teaching styles.

In some cases, contact with the departmental secretary indicated that the course would not be offered or that the expected enrollment fell outside the preferred range. In that case, secretaries were asked to suggest other courses. In this way, two or three courses were identified in each subject area.

Contact was then made with the instructors. In only two cases, the instructors declined to cooperate and suggested that different courses be used. In all other cases where the course fulfilled the stated criteria, permission was granted for class time to be used for administration of the IBDQ.

Fig. 7 shows the fields and subject areas that were chosen. The numbers 1-12 will be used throughout the rest of the text to refer to the classes.

Data Collection

The final form of the IBDQ and the items designed to collect information on other variables were administered during the first class period and again after about seven weeks. The data collected on the two occasions are shown on p. 160.

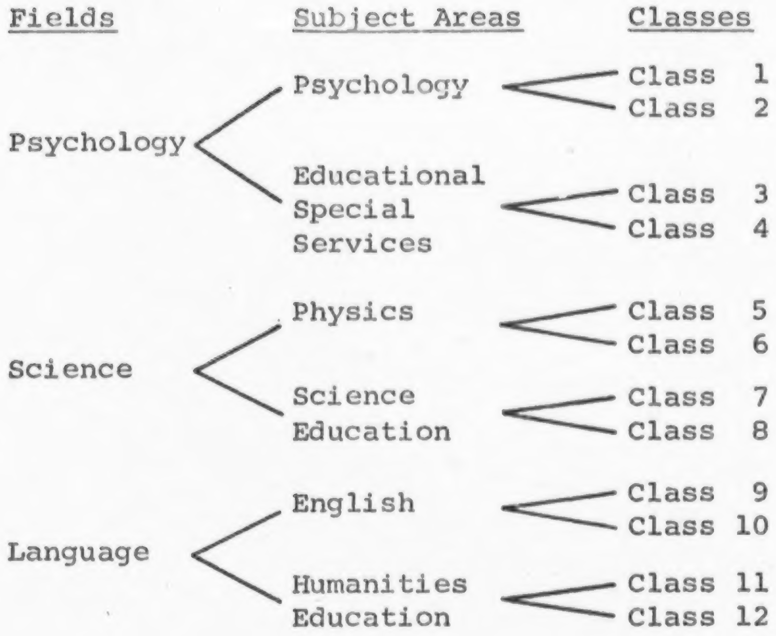

Fields
Subject Areas
Classes
Psychology
Psychology
Class 1
Class 2
Educational Special Services
Class 3
Class 4
Science
Physics
Class 5
Class 6
Science Education
Class 7
Class 8
Language
English
Class 9
Class 10
Humanities Education
Class 11
Class 12

Fig. 7. Sampling of Classes for the Main Study. "Science Education" includes one class from Early and Middle Childhood and one from Science and Mathematics Education.

1. Pretest

Ideal Instructor Behavior
Need for Dependence
Student Biographical Data
Course Structure Variables

2. Posttest

Ideal Instructor Behavior
Actual Instructor Behavior
Course Assessment

Pretest

The pretest was carried out during the first 10-15 minutes of the first class period during Spring Quarter 1973. For ten of the twelve classes, this was between March 27 and March 29; the other two classes met for the first times on April 2 (class 3) and April 9 (class 8). The instrument that was distributed is shown in Appendix D. Instructions were read out to each class in a standard format (Appendix F). In all but three cases, the classes were administered by the researcher. Classes 1 and 8 were administered by their instructors, and class 12 by a colleague of the researcher. These procedures were made necessary by time conflicts.

On the same occasion, the instructors were asked to complete the Course Description Questionnaire (Appendix H).

Posttest

The posttest was carried out 6-7 weeks after the pretest. It was assumed that by this time each class would have had at least one paper or midterm examination, and/or received some kind of feedback from the instructor, but not their final examination or term paper. For eleven of the classes, the posttest was between May 14 and May 17. For the twelfth class (class 8), it was on May 22. The instrument that was distributed is shown in Appendix E. Instructions were again read out in a standard format (Appendix G). The majority of the classes were administered by the researcher. Class 2 was administered by the instructor, and classes 4, 7, and 8 by a colleague of the researcher. This was necessary because of time conflicts.

On the same occasion, the instructors were asked to check their responses to the Course Description Questionnaire and to change them if necessary. The revised responses were used in scoring.

Summary

With the above time schedule, ten of the twelve classes had a period of exactly seven weeks between pretest and posttest and two (classes 3 and 8) had a period of six weeks. To have a shorter period for the latter two classes was considered preferable to letting them run an extra week and come too near to the end of the quarter when instructors might be feeling the pressure of time and the class situation might be different from that in the other classes.

Coding and Scoring

Students were instructed to enter their responses directly onto machine-scorable answer sheets. Answers were then converted into punched cards by the Office of Evaluation, options A-E becoming 0-4. The following transformations were then performed, using the computer program in Appendix K.

Ideal Instructor Behavior

For ideal instructor behavior (items 1-48 on the instruments in Appendices D and E), scores 0-4 were changed to 5-1 so that the highest score represented essential instructor behavior. Negatively worded items (10, 21, and 39) were changed from 0-4 to 1-5, and blanks ("irrelevant" responses) were converted to zeros. In this way, "irrelevant" responses were distinguished from the others.

Need for Dependence

The six items 49-54 in Appendix D were adapted from a scale of Vroom's (1959). It was expected that a person with a high need for dependence would prefer to be told what do to in class and would carry out suggestions without changing them. A person with a low need for dependence would adapt suggestions to his own preferences.

Transformations were carried out on the raw data so that a high score on these items would indicate a high need for dependence. For items 49 and 53, scores were changed from 0-4 to 1-5, and for items 50, 51, 52, and 54, from 0-4 to 5-1.

Student Biographical Variables

Items 55-59 in Appendix D collected data on the following variables: Year of Study, Sex, Freedom of Choice, Number of Courses, and Age Group. These variables are defined on p. 22.

No transformations were carried out on these data: responses A-E remained 0-4.

Actual Instructor Behavior

For actual instructor behavior (items 49-96 in Appendix E), responses 0-4 were changed to 5-1 so that the highest score represented behavior that always occurred. Negatively worded items (58, 69, and 87) were changed to 1-5, and blanks to 3's (the mid-point of the scale).

Course Assessment

The six items 97-102 in Appendix E were written to be similar to those used on many current evaluation instruments for describing overall course assessment.

Responses 0-4 were changed to 5-1 so that the highest score represented the most favorable assessment of the course and the instructor. Blanks were changed to 3's (the mid-point of the scale).

A summary of the transformations performed on the raw student data is given in Table 12.

Course Structure Variables

The seven items of the Course Description Questionnaire (see Appendix H) were designed to collect from instructors descriptions of the amount of student involvement in the course. Responses were scored so that a high score represented a high degree of student involvement and responsibility, student talk, opportunity for students to participate and influence the course, and feedback from instructor to students

TABLE 12

TRANSFORMATIONS PERFORMED ON RAW DATA

Variables	Items	0 - 4 changed to	Blanks changed to
	Pretest[a]		
Ideal Instructor Behavior	1 - 48 except 10, 21, 39	5 - 1	0
	10, 21, 39	1 - 5	0
Need for Dependence	49, 53	1 - 5	3
	50, 51, 52, 54	5 - 1	3
Student Biographical Variables	55 - 59	Unchanged	Unchanged
	Posttest[b]		
Ideal Instructor Behavior	1 - 48 except 10, 21, 39	5 - 1	0
	10, 21, 39	1 - 5	0
Actual Instructor Behavior	49 - 96 except 48, 69, 87	5 - 1	3
	48, 69, 87	1 - 5	3
Course Assessment	97 - 102	5 - 1	3

[a] Item numbers refer to the instrument in Appendix D.

[b] Item numbers refer to the instrument in Appendix E.

and from students to instructor. The scoring system is given in Appendix I.

Data Analysis for the Main Study

In this section are reported the results of the preliminary data analyses for the main study. The analyses to be used in testing the hypotheses are also described briefly: The major results are given in Chapter IV. The outline for this section is as follows:

1. Factor analysis of actual instructor behavior descriptions in the main study
2. Operational definition of the variables
3. Reliability and validity of the final form of the IBDQ
4. Description of the sample and dropouts
5. Analyses for the testing of the hypotheses.

Factor Analysis of Actual Instructor Behavior Descriptions (Main Study)

The raw data for actual instructor behavior was all transformed so that 0-4 was changed to 5-1 and any blanks were converted to 3's as in the pilot study. Descriptions of actual instructor behavior were then factor analyzed using the BMD03M program. Ideal behavior descriptions could not be analyzed in this way because of the presence of the "irrelevant" response category.

Four factors were extracted and rotated, accounting for 37% of the variance. The factor loadings, eigenvalues, and percentage of variance accounted for by each factor, are given in Appendix J.

In the following tables and figures, the numbers used for the items in the pilot study (pp. 141-149) and the a priori dimensions (Tables 7-11) are also used when referring to the items on the final form of the IBDQ. This allows easy comparison of the results.

Fig. 8 and Fig. 9 show the best loaded items in the pilot study and the main study. The criteria for exclusion of multiple-loaded items are given on p. 153. In addition, the item "Is fair in grading my work" is excluded from Fig. 9 because some of the graduate classes said they had not received feedback on any written work from their instructors and could not answer the item.

Similarities and differences between the factors obtained in the pilot study and the main study may be noted, and the factors compared to the a priori dimensions. In the main study, most of the items originally assigned to Interaction Facilitation (1, 13, 34, 47) again loaded on one

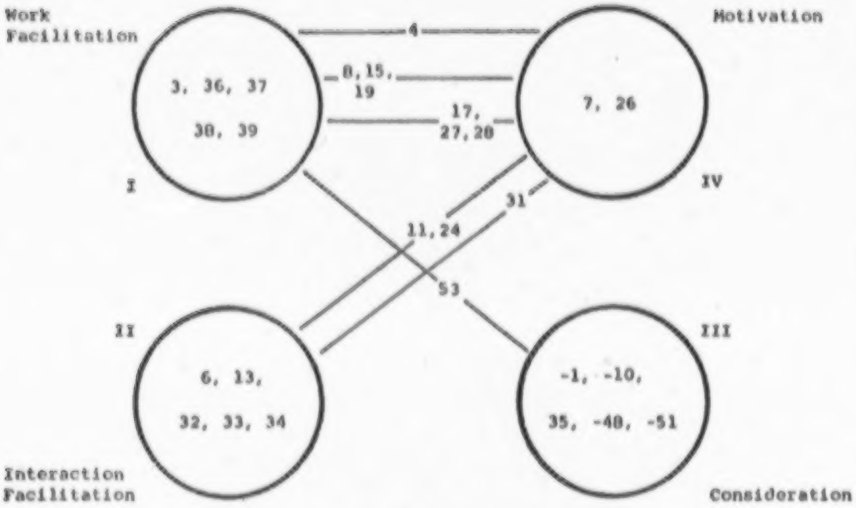

Work
Facilitation
Motivation
4
8, 15, 19
17, 27, 28
3, 36, 37
38, 39
7, 26
I
IV
31
11, 24
53
II
III
6, 13,
32, 33, 34
-1, -10,
35, -48, -51
Interaction
Facilitation
Consideration

Fig. 8. Factor loadings of best items in pilot study. Items within circles have loadings above .40 on that factor and less than .20 on other factors. Items between circles have loadings above .40 on one factor and above .30 on the other factor; their positions show approximately the ratio of the two loadings. Some items with multiple loadings have been excluded.

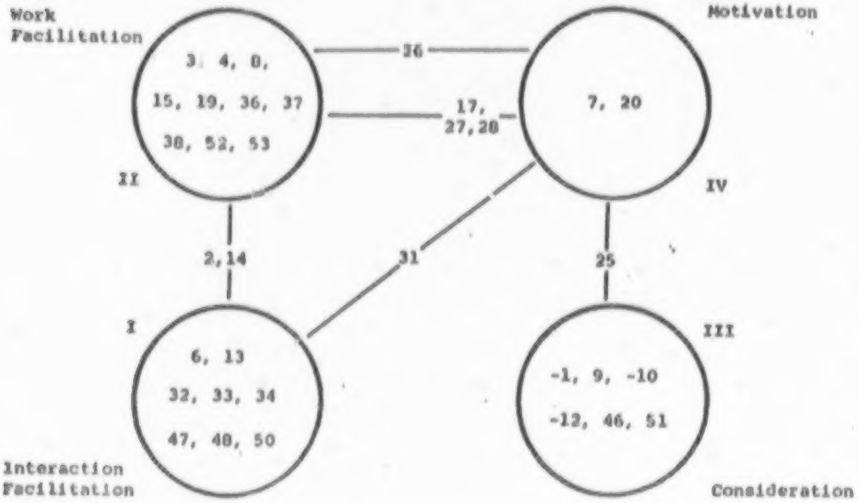

Work
Facilitation
Motivation
26
3, 4, 8,
15, 19, 36, 37
38, 52, 53
17, 27, 28
7, 20
II
IV
2, 14
31
25
I
III
6, 13
32, 33, 34
47, 48, 50
-1, 9, -10
-12, 46, 51
Interaction
Facilitation
Consideration

Fig. 9. Factor loadings of best items in main study. Criteria for inclusion and exclusion are as in the pilot study (Fig. 8). Item 51 was changed from a negative form in the pilot study to a positive form in the main study.

factor (I). The original Work Facilitation items (4, 8, 15, 26, 33, 36, 38, 50, 53) loaded more clearly than in the pilot study, mostly on one factor (II). The original Consideration items (9, 10, 12, 20, 25, 31, 46, 48, 51, 52) again loaded on one factor (III). Factors I, II, and III in the main study can thus be identified as Interaction Facilitation, Work Facilitation, and Consideration respectively.

The original Motivation items seem to have been of three kinds: participation items (6, 32) which loaded with Interaction Facilitation, interest items (3, 19, 37) which loaded with Work Facilitation, and encouragement items (7, 17, 27, 28) which had their highest loadings on a separate factor (IV). This distribution occurred in both the pilot study and the final study. As suggested in the pilot study (p. 155), factor IV can be labelled Motivation using this term in a narrow sense. The distribution of the other items originally on the Motivation dimension suggests that participation and interesting class presentations are also seen as motivating.

The similarity of the factor structures for the pilot study and the main study was most encouraging, as the samples used, the methods of data collection, and the ordering of the items were different. Furthermore, teaching associates were described in the pilot study and professors in the main study. Apart from the break up of the original Motivation dimension, the validity of the a priori dimensions was confirmed. In fact the distribution of Motivation items was consistent with some of the literature discussed in Chapter II. Post hoc dimensions defined from the factor analysis are likely to be more valid than the a priori ones.

The items within each circle in Fig. 9 were taken to define the dimensions for use in the subsequent data analysis. In addition, items 17 and 27 were included in the Motivation dimension on the basis of their face validity. (Item 28 was not included on this basis, as it had a loading of almost .30 on three factors.) The items defining each dimension are shown in Table 13. Formal definitions are given on p. 20.

Operational Definitions of Variables

The hypotheses of this study are to be tested using the student variables listed in Table 14 and various class variables. The student variables are defined operationally from the responses to the pretest and posttest administrations of the final form of the IBDQ, transformed as described on pp. 162-165.

TABLE 13

ITEMS SELECTED TO DEFINE FOUR DIMENSIONS OF INSTRUCTOR BEHAVIOR

Dimension I: Interaction Facilitation (IF)

33. Organizes effective discussion groups (.82)[a]
34. Sets aside class time for inter-student discussions (.73)
13. Arranges the room so students can discuss together (.70)
50. Shows me how the course material relates to everyday life (.61)
6. Asks us what topics we would like to cover (.49)
47. Wants students to get along together (.49)
32. Plans course objectives jointly with students (.48)

Dimension II: Work Facilitation (WF)

19. Makes the work interesting for me (.73)
53. Presents material so I can understand it (.66)
15. Uses effective teaching methods for this course (.65)
38. Shows us he is well organized (.64)
52. Makes it pleasant for me to be in class (.62)
37. Shows enthusiasm for the subject (.60)
3. Shows me that the topics being discussed are important (.58)
4. Makes clear his role in the class (.56)
8. Inspires my confidence in his knowledge of the subject (.50)
36. Schedules the work so things get done at the right times (.45)

Dimension III: Consideration (C)

51. Welcomes individual contact with students (.60)
46. Makes me feel free to ask questions (.59)
9. Is friendly and approachable (.57)
1. Makes derogatory remarks about some students in front of the others (-.55)
12. Criticizes me in a destructive way (-.50)
10. Does things himself that he doesn't allow me to do (-.42)

Dimension IV: Motivation (M)

20. Calls me by my name (.72)
17. Motivates me to do my best work (.61, and .43 on II)
7. Encourages me to spend extra time and effort on my work (.56)
27. Provides me with informational feedback and encourages greater effort (.56, and .32 on II)

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[a] Factor loadings.

TABLE 14

STUDENT VARIABLES

Variable Number		Description
1	Pretest dimension scores (ideal)	Interaction Facilitation
2		Work Facilitation
3		Consideration
4		Motivation
5	Pretest number relevant (ideal)	Interaction Facilitation
6		Work Facilitation
7		Consideration
8		Motivation
9	Student Characteristics	Need for Dependence
10		Year of Study
11		Sex
12		Freedom of Choice
13		Number of Courses
14		Age Group
15	Posttest dimension scores (ideal)	Interaction Facilitation
16		Work Facilitation
17		Consideration
18		Motivation
19	Posttest number relevant (ideal)	Interaction Facilitation
20		Work Facilitation
21		Consideration
22		Motivation
23	Dimension scores (actual)	Interaction Facilitation
24		Work Facilitation
25		Consideration
26		Motivation
27	Satisfaction Scores	Interaction Facilitation
28		Work Facilitation
29		Consideration
30		Motivation
31		Overall
32		Course Assessment Score

Student Characteristics

The Need for Dependence score (variable 9) is the mean of the six transformed responses to items 49-54 on the pretest instrument (Appendix D).

Year of Study, Sex, Freedom of Choice, Number of Courses, and Age Group (variables 10-14) are given by the responses to items 55-59 respectively on the pretest instrument (Appendix D).

Course Assessment

The course assessment score (variable 32) is the mean of the six transformed responses to items 97-102 on the posttest instrument (Appendix E).

Dimension Scores and Number of Items Considered Relevant

Dimension scores are defined from the items listed in Table 13 and the responses transformed according to the schedule in Table 12. For pretest ideal behavior (variables 1-4) and posttest ideal behavior (variables 15-18), the dimension score is the mean transformed response on the items considered relevant on each dimension. Thus, if a student's transformed responses were 2, 1, 0, 2, 1 on a dimension, his dimension score was calculated as $\frac{2 + 1 + 2 + 1}{4} = 1.5$, with 4 items considered relevant. For actual behavior (variables 23-26), the dimension score is the mean of all the transformed responses on each dimension, since there is no "irrelevant" response category.

Use of these scores for ideal behavior descriptions assumes that the dimensions are internally consistent. For example, a student with responses of 0, 1, 0, 2, 0 would receive the same dimension score (1.5) as the student with 2, 1, 0, 2, 1. As items were assigned to dimensions on the basis of a factor analysis, and dimension scores for actual behavior were found to have high reliabilities (Table 15, p. 179), this assumption is considered justifiable.

Because no precedent was found in the literature for the use of dimension scores as defined above, the number of relevant items on each dimension is also used in the data analysis. Number relevant is only defined for ideal behavior descriptions (variables 5-8 and 19-22).

Satisfaction

Following the rationale outlined in Chapter II (pp.130-133), the satisfaction of each student was found by comparing student descriptions of ideal and actual instructor behavior. The importance alternatives for ideal behavior had been chosen to correspond to the frequency alternatives for actual behavior:

Ideal	Actual
A. Essential	A. Always
B. Very important	B. Often
C. Fairly important	C. Sometimes
D. Undesirable	D. Seldom
E. Should always be avoided	E. Never

Thus a behavior described as "Essential" should "Always" occur, and one that is "Undesirable" should "Seldom" occur.

Because the correspondence may not be exact, the ideal and actual behavior descriptions were said to "match" if they differed by no more than one scale point. This is similar to the procedure adopted by Sanders and Lynch (1973). The satisfaction scores for each student on each dimension (variables 27-30) were then defined as the percentage of the relevant items which were matches.

An example of the calculation of a satisfaction score will be given by reference to the imaginary responses shown in Fig. 10. In this example, two items were considered relevant (items 1 and 2) and one irrelevant (item 3). There is a match on one of these items (item 1), since the difference between his ideal and actual responses is not more than one scale point. If these three items were the only items on a dimension, the student's satisfaction would be recorded as 1/2, one match out of two items considered relevant, and his satisfaction score would be 50 (per cent).

Item	Choice on Ideal Item	Choice on Corresponding Actual Item	Decision
1	C: Fairly important	B: Often	Match
2	E: Should always be avoided	C: Sometimes	Non-match
3	(Blank)	C: Sometimes	Irrelevant; not counted

Fig. 10. Example of Satisfaction Calculation

An overall satisfaction score for each student (variable 31) was similarly defined as the percentage of the total number of relevant items on all dimensions which were matches.

A computer program to perform these operations was written for the researcher and is given in Appendix M. Output from this program was returned to each of the instructors at the end of the quarter; an example is shown in Appendix N.

Class Variables

Class means of student data on variables 1-26 and 32 are used in some of the data analysis. Class satisfaction scores on each dimension and overall were not obtained as the means of student data on variables 27-31, but were defined as the percentage of the class total number of relevant items which were matches.

Course structure variables (Method of Presentation , Choice of Topics, Preparation of Material, Structuring of Topics, Means of Assessment, Feedback on Written Work, and Course Evaluation) were defined by responses to the Course Description Questionnaire (Appendix H), scored as shown in Appendix I.

Reliability and Validity of the Final Form of the IBDQ

Reliability of Dimension Scores

Item responses for actual instructor behavior on the four dimensions were entered in the STATPACK program for Subtest Analysis of Scales. This computed item-to-dimension correlations and KR-8 reliabilities for each dimension. Results are given in Table 15. The reliabilities are high, and justify confidence in later analyses based on the four dimensions identified.

Reliabilities of dimension scores for ideal instructor behavior, and of satisfaction scores on each dimension, could not be calculated because of the presence of the "irrelevant" response category.

Stability of the Dimension Scores

Students described ideal instructor behavior on two occasions six to seven weeks apart in the process of collecting data for testing Hypothesis 2. The correlations between pretest and posttest dimension scores are given in Table 16.

TABLE 15

ITEM MEANS AND STANDARD DEVIATIONS, CORRELATIONS BETWEEN ITEMS AND DIMENSION SCORES, AND KR-8 RELIABILITIES OF DIMENSION SCORES FOR ACTUAL INSTRUCTOR BEHAVIOR

Dimension (Actual)	Reliability	Item No.[a]	Mean	S.D.	Item-Dimension Correlation
Interaction Facilitation	.89	33	3.32	1.21	.82
		34	3.38	1.34	.77
		13	3.69	1.29	.80
		50	3.42	1.03	.68
		6	3.18	1.01	.65
		47	3.69	0.87	.61
		32	2.85	1.09	.63
Work Facilitation	.88	19	4.12	0.81	.75
		53	4.39	0.67	.68
		15	4.17	0.73	.74
		38	3.93	0.93	.71
		52	4.18	0.75	.68
		37	4.64	0.59	.63
		3	3.99	0.76	.66
		4	4.01	0.90	.64
		8	4.46	0.66	.50
		36	3.82	0.85	.52
Consideration	.80	51	4.35	0.74	.71
		46	4.59	0.72	.66
		9	4.60	0.68	.60
		1	4.75	0.65	.66
		12	4.88	0.43	.57
		10	4.13	0.94	.63
Motivation	.84	20	3.84	1.51	.78
		17	3.78	0.83	.79
		7	3.28	0.88	.72
		27	3.48	0.87	.68

[a] Items listed in decreasing order of factor loading (see Table 13).

TABLE 16

CORRELATIONS BETWEEN PRETEST AND POSTTEST DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR, BY STUDENT AND BY CLASS

Pretest Dimension Scores (Ideal)	Posttest Dimension Scores (Ideal)			
	IF	WF	C	M
	By student[a]			
IF	.59	.13	.26	.24
WF	.30	.72	.38	.40
C	.17	.22	.56	.29
M	.37	.28	.29	.50
	By class[b]			
IF	.77	-.17	.06	.26
WF	.15	.78	.66	.17
C	.34	-.07	.44	.22
M	.64	.11	.70	.40

[a] N's range from 133 to 137; $P(r \geqslant .17) = .05$ and $P(r \geqslant .22) = .01$.

[b] $N = 12$; $P(r \geqslant .58) = .05$ and $P(r \geqslant .71) = .01$.

The values on the diagonals show the stability of the four dimension scores. By student, the values for all scales are significant at the .01 level, and by class Interaction Facilitation and Work Facilitation are significant at the .01 level. Considering that the period between pretest and posttest was so long compared to most test-retest periods, and that it was hypothesized that there would be changes over this time, these figures show that the dimension scores are fairly stable.

Intercorrelations of the Dimensions

Three sets of intercorrelations between dimension scores were examined: for pretest ideal descriptions (Table 17) for posttest ideal descriptions (Table 18) and for actual behavior descriptions (Table 19). The three tables show a similar pattern. By student, all intercorrelations are significant at the .05 level; by class, no intercorrelations are significant at this level. As the items assigned to each of the four dimensions also had loadings on other dimensions, it was to be expected that there would be quite high intercorrelations. The dimension scores can thus be used as separate scales but they are not independent.

The items were assigned to dimensions on the basis of descriptions of actual instructor behavior. The fact that the intercorrelations for ideal behavior descriptions were so similar on the two occasions (Tables 17 and 18) and were not consistently higher or lower than the intercorrelations for actual behavior descriptions (Table 19) supports the

TABLE 17

INTERCORRELATIONS OF PRETEST DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR, BY STUDENT AND BY CLASS[a]

Pretest Dimension Scores (Ideal)	Pretest Dimension Scores (Ideal)			
	IF	WF	C	M
IF		.27	.28	.33
WF	-.21		.35	.36
C	.08	.12		.29
M	.29	.30	.61	

[a] Correlations above the diagonal are by student; $P(r \geqslant .22) = .01$. Correlations below the diagonal are by class; $P(r \geqslant .58) = .05$.

TABLE 18

INTERCORRELATIONS OF POSTTEST DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR, BY STUDENT AND BY CLASS[a]

Posttest Dimension Scores (Ideal)	Posttest Dimension Scores (Ideal)			
	IF	WF	C	M
IF		.32	.28	.41
WF	.14		.38	.42
C	.47	.53		.27
M	.54	.50	.45	

[a] Correlations above the diagonal are by student; $P(r \geqslant .22) = .01$. Correlations below the diagonal are by class; $P(r \geqslant .58) = .05$.

TABLE 19

INTERCORRELATIONS OF DIMENSION SCORES FOR ACTUAL INSTRUCTOR BEHAVIOR, BY STUDENT AND BY CLASS[a]

Dimension Scores (Actual)	Dimension Scores (Actual)			
	IF	WF	C	M
IF		.34	.30	.33
WF	.19		.16	.33
C	.31	-.19		.13
M	.51	.09	.11	

[a] Correlations above the diagonal are by student; P(r ⩾ .17) = .05 and P(r ⩾ .22) = .01. Correlations below the diagonal are by class; P(r ⩾ .58) = .05.

TABLE 20

INTERCORRELATIONS OF SATISFACTION SCORES, BY STUDENT AND BY CLASS

Dimension	Dimension			
	IF	WF	C	M
IF		.17	.11	.15
WF	.12		.05	-.05
C	.37	.06		.17
M	-.12	.18	.14	

[a] Correlations above the diagonal are by student; P(r ⩾ .17) = .05. Correlations below the diagonal are by class; P(r ⩾ .58) = .05.

validity of using dimensions obtained from actual instructor behavior in the analysis of ideal behavior.

Intercorrelations of Satisfaction Scores

Intercorrelations of satisfaction scores by student and by class were also found (Table 20). These intercorrelations are very low, only two of them (by student) being significant at the .05 level. The satisfaction scores can thus be used as separate scales.

Discrimination of Differences between Classes on Actual Instructor Behavior

Classes for the sample had been chosen from a variety of subject areas (p.159) and with small sizes in anticipation that a variety of teaching styles would be observed. Instructor responses to the Course Description Questionnaire (Appendices H and I, and Table 35, p. 207) indicated that indeed the classes were being taught in different ways. Class descriptions of actual instructor behavior should therefore be different.

Means and standard deviations of actual dimension scores by class are given in Table 21, and analysis of variance of these scores is reported in Table 22. There was a significant overall difference between classes ($P < .001$), and

TABLE 21

MEANS AND STANDARD DEVIATIONS OF DIMENSION SCORES FOR ACTUAL INSTRUCTOR BEHAVIOR, BY CLASS AND OVERALL

Class	N		Dimension Scores (Actual)			
			IF	WF	C	M
1	4	M	2.393	4.000	4.625	3.125
		SD	0.442	1.010	0.344	0.924
2	8	M	3.839	3.987	4.729	3.750
		SD	0.473	0.352	0.153	0.500
3	12	M	3.690	3.900	4.653	3.750
		SD	0.430	0.694	0.279	0.384
4	19	M	3.714	4.200	4.377	3.461
		SD	0.660	0.467	0.580	0.973
5	19	M	2.248	4.037	4.167	3.066
		SD	0.654	0.273	0.539	0.820
6	5	M	2.686	4.520	4.633	3.400
		SD	0.293	0.370	0.298	0.137
7	21	M	4.000	4.448	4.675	3.214
		SD	0.461	0.383	0.286	0.902
8	7	M	3.837	4.100	4.786	4.107
		SD	0.399	0.327	0.159	0.537
9	16	M	2.982	4.012	4.781	3.875
		SD	0.703	0.480	0.256	0.428
10	9	M	3.254	3.867	4.667	3.889
		SD	0.235	0.550	0.323	0.309
11	7	M	3.429	4.443	4.071	4.286
		SD	0.738	0.519	0.630	0.443
12	10	M	3.757	4.550	4.700	4.075
		SD	0.580	0.310	0.312	0.442
Overall	137	M	3.363	4.172	4.550	3.595
		SD	0.808	0.501	0.448	0.764

significant univariate differences for Interaction Facilitation, Consideration, and Motivation at the .001 level, and for Work Facilitation at the .002 level. Assuming that the classes were different students using the IBDQ described these differences on all the dimensions. The large differences may partly depend on students having already filled out the description of ideal instructor behavior, so that they were more likely to respond accurately to the description of actual behavior: As their ideals would be taken into account, they did not have to fear giving a "bad" description for an instructor.

TABLE 22

MULTIVARIATE AND UNIVARIATE ANALYSIS OF VARIANCE OF DIMENSION SCORES FOR ACTUAL INSTRUCTOR BEHAVIOR, BY CLASS

Dimension(s)	d.f.	M.S.	F	P <
		Multivariate		
IF, WF, C, M	44, 468.7	-	6.054	.001
		Univariate		
IF	11, 125	4.475	14.187	.001
WF	11, 125	0.642	2.977	.002
C	11, 125	0.666	4.188	.001
M	11, 125	1.798	3.769	.001

Cross Validation

On the Course Description Questionnaire (Appendix H), instructors described the amount of student involvement, student responsibility and student-instructor feedback in their classes. (The scoring system is given in Appendix I.) The intercorrelations of the responses to the seven items are given in Table 23. Four of the items were correlated at the .01 level with the total score: items 1, 2, 3 and 5. These items could be taken as the best ones to describe the amount of interaction and participation of the students.

TABLE 23

INTERCORRELATIONS OF COURSE STRUCTURE VARIABLES[a]

Variable	2	3	4	5	6	7	Total
1. Method of Presentation	.51	.84	.00	.62	.04	-.09	.75
2. Choice of Topics		.63	.47	.79	.01	-.13	.84
3. Preparation of Material			.16	.69	-.13	-.03	.79
4. Structuring of Topics				.52	-.27	.05	.48
5. Means of Assessment					-.23	.14	.91
6. Feedback on Written Work						-.66	-.01
7. Course Evaluation							.07

[a] $N = 12$; $P(r \geqslant .58) = .05$, $P(r \geqslant .71) = .01$.

If the IBDQ is a valid measure of actual instructor behavior, then the correlations between instructors' course descriptions on these items and students' mean scores on the Interaction Facilitation dimension should be significant and positive.

Correlations between course structure variables and class mean dimension scores are given in Table 24. There was a significant correlation ($P < .01$) between Interaction Facilitation scores and two of the four best items ("Method of Presentation" and "Preparation of Material"). There was also a significant correlation ($P < .05$) between Interaction Facilitation scores and the total score on the questionnaire.

It is interesting to note that the other two items (Choice of Topics and Means of Assessment) were correlated at the .01 level with Consideration scores. Consideration scores were also correlated with the total score on the questionnaire at the .01 level, and with items 1 and 3 at the .05 level. In this sample of students, student involvement and responsibility as defined by the instructors' responses to the Course Description Questionnaire tended to be described as considerate behavior by the students.

TABLE 24

CORRELATIONS BETWEEN COURSE STRUCTURE VARIABLES AND MEAN DIMENSION SCORES FOR ACTUAL INSTRUCTOR BEHAVIOR[a]

Course Structure Variable	Dimension Scores (Actual)			
	IF	WF	C	M
1. Method of Presentation	.71	-.01	.61	.21
2. Choice of Topics	.47	-.16	.87	.01
3. Preparation of Material	.73	.07	.68	.38
4. Structuring of Topics	.13	.38	.23	-.49
5. Means of Assessment	.38	.08	.72	-.21
6. Feedback on Written Work	.04	-.38	-.10	.13
7. Course Evaluation	-.02	.55	-.12	-.13
Total Score	.61	.13	.72	-.05

[a] $N = 12$; $P(r \geqslant .58) = .05$ and $P(r \geqslant .71) = .01$.

Summary

The dimension scores for actual instructor behavior derived from the IBDQ were reliable (KR 8 reliabilities between .80 and .89) and most of them were stable over a seven-week period. Although items were assigned to dimensions on the basis of the highest factor loadings, the dimension scores could be considered as separate scales. Dimensions defined from the factor analysis of actual instructor behavior were also valid for descriptions of ideal behavior. Satisfaction scores on the dimensions could also be considered as separate scales. Differences between classes in actual instructor behavior as described by the instructors on the Course Description Questionnaire were similarly described by students in their responses to the IBDQ.

Description of the Sample and Dropouts

The sample for the main study consisted of twelve graduate classes drawn from six subject areas (Fig. 7, p. 159). Class enrollment had been expected to be between 10 and 20 when contact was first made with the instructors, but the initial class sizes for the pretest actually ranged from 7 to 25 and the final numbers that were present for the posttest were smaller (Table 25). "Dropouts" in Table 25 refers to students who were present at the pretest, but for some reason were not present at the posttest. Four students who did not fill in all the Assessment items on the posttest (two students each from classes 4 and 9) were also classified as dropouts.

Number of items relevant and dimension scores on each dimension of ideal instructor behavior were available for each student from the pretest. Multivariate analyses of variance were performed on both variables to determine if the dropouts differed significantly from the remainder of

TABLE 25

INITIAL NUMBER OF STUDENTS, NUMBER OF DROPOUTS, AND FINAL NUMBER OF STUDENTS, BY CLASS

Class	Initial Number	Number of Dropouts	Final Number
1	8	4	4
2	10	2	8
3	14	2	12
4	25	6	19
5	22	3	19
6	7	2	5
7	25	4	21
8	10	3	7
9	23	7	16
10	14	5	9
11	10	3	7
12	11	1	10
Overall	179	42	137

the class (the "stayins") and to find if there had been differential dropout from the twelve classes. This check was considered essential because both number of items relevant and dimension scores would be used in testing the hypotheses of the main study.

The analyses are summarized in Tables 26 and 27. An overall difference between classes was found for both variables (this will be discussed in Chapter IV) but no

TABLE 26

MULTIVARIATE ANALYSIS OF VARIANCE OF NUMBER OF ITEMS CONSIDERED RELEVANT IN PRETEST DESCRIPTIONS OF IDEAL INSTRUCTOR BEHAVIOR, BETWEEN CLASSES AND BETWEEN DROPOUTS AND STAYINS

Source	d.f.	F	P <
Between Classes (C)	44, 583.5	2.275	.001
Between Dropouts and Stayins (D)	4, 152	0.819	.515
Interaction (C x D)	44, 583.5	1.207	.174

TABLE 27

MULTIVARIATE ANALYSIS OF VARIANCE OF PRETEST DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR, BETWEEN CLASSES AND BETWEEN DROPOUTS AND STAYINS

Source	d.f.	F	P <
Between Classes (C)	44, 583.5	2.280	.001
Between Dropouts and Stayins (D)	4, 152	0.804	.524
Interaction (C x D)	44, 583.5	1.207	.174

difference between dropouts and stayins and no interaction effect. Thus it was assumed that the dropouts were a random sample from each class. The remainder of the data analysis uses only data from the "stayins." Descriptive statistics on the student characteristics are given in Chapter IV (Tables 28-34, pp. 199-205). Data on course structure variables are given in Table 35, p. 207.

Analyses for the Testing of Hypotheses

The following correlational analyses and analyses of variance, on the student variables and course structure variables (Tables 28-35, pp. 199-207) were performed in testing the hypotheses. (Tables of results are given in Chapter IV.)

Hypothesis 1 There are significant correlations between selected student characteristics and dimension scores for ideal instructor behavior.

This was tested by finding correlations between student characteristics and pretest and posttest dimension scores for ideal instructor behavior (Table 36, p.209).

Hypothesis 2 There are significant class changes in descriptions of ideal instructor behavior from pretest to posttest.

This was tested by finding changes from pretest to posttest on the four dimensions of ideal instructor behavior in:

a. mean number of items considered relevant in each class (Table 37, p. 212).

b. mean dimension score in each class (Table 38, p. 213).

c. standard deviation of dimension scores in each class (Table 39, p. 214).

There were thus twelve change scores on each dimension for each of the three variables. Hotelling's T^2 test was employed to determine if the change scores for each variable were significantly different from zero. Results are given on pp. 210-216 and in Table 40 (p. 215).

Other comparisons and analyses to test this hypothesis were:

1. Comparison of correlations of pretest and posttest dimension scores for ideal instructor behavior with corresponding dimension scores for actual instructor behavior (Table 41, p. 218).

2. Comparison of analyses of variance on number of items considered relevant on pretest (Table 51, p.233) and posttest (Table 42, p. 220) descriptions of ideal behavior

3. Comparison of analyses of variance on dimension scores on pretest (Table 53, p.235) and posttest (Table 43, p.222) descriptions of ideal behavior, and use of pretest scores as covariates in an analysis of covariance of the posttest scores (Table 44, p. 223).

4. Analysis of changes from pretest to posttest in the number of items considered relevant and in dimension scores for ideal instructor behavior in a random sample of eight students from one class in each of the six subject areas (Tables 45 and 46, pp. 225).

Hypothesis 3 There are significant correlations between course structure variables and class changes in descriptions of ideal instructor behavior from pretest to posttest

This was tested by finding the correlations of course structure variables with class changes in mean number of items relevant (Table 47, p.227), in mean dimension score (Table 48, p.227), and in standard deviation of dimension scores (Table 49, p.228).

Hypothesis 4 There are significant differences between classes in pretest descriptions of ideal instructor behavior.

This was tested using the number of items considered relevant and dimension scores for each dimension of pretest descriptions of ideal instructor behavior. Descriptive statistics for number of items relevant are given in

Table 50 (p.232) and the analysis of variance in Table 51 (p.233). Descriptive statistics for dimension scores are given in Table 52 (p.234) and the analysis of variance in Table 53 (p. 235).

Hypothesis 5 There are significant differences between classes on course assessment and on satisfaction scores.

Descriptive statistics for course assessment scores are given in Table 54 (p.236) and the analysis of variance in Table 55 (p.236). Descriptive statistics for satisfaction scores are given in Table 56 (p.237) and the analysis of variance in Table 57 (p. 238).

Hypothesis 6 There are significant correlations between course assessment and satisfaction scores, and selected student characteristics and course structure variables.

Correlations of student characteristics with assessment and satisfaction scores are given in Table 58 (p. 240). Correlations of course structure variables with class mean assessment and satisfaction scores are given in Table 59 (p.242).

Correlations between course assessment scores, satisfaction scores, and dimension scores for actual instructor behavior are also examined (Tables 60 and 61, pp. 243-244).

CHAPTER IV

RESULTS

Chapter III described the development of the trial form of the IBDQ and its use and revision for the main study. Data from the final form of the IBDQ was factor analyzed and reliability and validity estimates found and reported in Chapter III.

This chapter describes student characteristics and course structure variables of classes in the main study and reports results from the analyses outlined at the end of Chapter III for the testing of hypotheses.

The plan for this chapter is as follows:

1. Descriptive data on student characteristics
2. Descriptive data on course structure variables
3. Testing of the hypotheses
4. Summary of results

Descriptive Data on Student Characteristics

As described on pp. 157-159, graduate classes for the main study were chosen from a variety of subject areas.

This was done partly to provide a wide sampling of graduate classes at The Ohio State University, and partly to accentuate differences between classes in order to allow correlations to be found. No objective judgment can be made as to the representativeness of the sample, but evidence is presented to show a wide range on most of the student characteristics measured. The results are given below in Tables 28-33. In each table, class numbers refer to the 12 graduate classes in the main study as listed in Fig. 7 (p. 159); N is the number of students responding to particular items.

Need for Dependence

Results for Need for Dependence are given in Table 28. The possible range of scores is from 1 through 5, with 5 representing the highest need for dependence. Student scores are the means of responses to six items (items 49-54 in Appendix D). The class means had a range from 2.33 to 2.78, which was very narrow. Inspection of the standard deviations within classes show them in most cases to be large relative to the variation between classes. An analysis of variance confirmed that the differences between classes were not significant ($F = .854$; d.f. = 11, 125; $P < .586$).

TABLE 28

MEANS AND STANDARD DEVIATIONS OF NEED FOR DEPENDENCE SCORES, BY CLASS AND OVERALL

Class	N	Mean[a]	S.D.
1	4	2.333	0.561
2	8	2.646	0.431
3	12	2.694	0.419
4	19	2.667	0.397
5	19	2.544	0.333
6	5	2.633	0.247
7	21	2.706	0.488
8	7	2.524	0.224
9	16	2.510	0.410
10	9	2.519	0.338
11	7	2.714	0.126
12	10	2.783	0.261
Overall	137	2.622	0.382

[a] High scores indicate high need for dependence.

Year of Study

For this variable and the following student biographical variables, frequency of responses to the items are given. Table 29 shows the frequency distributions for number of years of graduate study, and the means and standard deviations. This shows that the class mean response ranged from 0.32 to 2.43 with the overall mean around the second year, and the mode at the first year of graduate study. The twelve classes in the study thus showed a fair spread on this variable, but with some bias toward the first year.

TABLE 29

FREQUENCY DISTRIBUTION, MEANS, AND STANDARD DEVIATIONS OF YEAR OF STUDY, BY CLASS AND OVERALL

Class	N	Response[a]					Mean	S.D.
		0	1	2	3	4		
1	4	1		3			1.500	1.000
2	8	4	3	1			0.625	0.744
3	12	7	4		1		0.583	0.900
4	19	7	6	3		3	1.263	1.408
5	17	9	4	4			0.706	0.849
6	4	1	1	2			1.250	0.957
7	19	14	4	1			0.316	0.582
8	7	1	1	2		3	2.429	1.618
9	16	9	5	1	1		0.625	0.885
10	9	4	4	1			0.667	0.707
11	6	2	1		1	2	2.000	1.897
12	10	2	4	3		1	1.400	1.174
Overall	131	61	37	21	3	9	0.947	1.159

[a] Code: 0 = 1st year graduate student, 1 = 2d year, 2 = 3d year, 3 = 4th year, 4 = 5th year and above.

Sex

Reference to Table 30 shows that classes varied from all male (classes 1 and 6) to almost all female (class 7), and there were approximately equal numbers of males and females in the total sample. There was thus a good representation of both sexes.

Freedom of Choice

Table 31 shows that the classes ranged from one where all the students had "freely elected" the course (class 6) to one where all the students were "required" to take it (class 2). In most classes, there was a good range of responses, and except for "prerequisite to required courses," it seems that all the codes were well used. The usual two alternatives "required" and "elected" would have been too restrictive in this case.

Number of Courses

Reference to Table 32 shows that the classes ranged from one containing students who were all new to the instructor (class 10) to one in which most students had been with the instructor in three or more previous courses (class 2). This is again a good range.

TABLE 30

FREQUENCY DISTRIBUTIONS OF SEX, BY CLASS AND OVERALL

Class	1	2	3	4	5	6	7	8	9	10	11	12	Over-all
Males	4	6	7	8	17	5	2	4	7	5	2	5	72
Females	0	2	5	11	2	0	17	3	8	4	5	5	62
Total	4	8	12	19	19	5	19	7	15	9	7	10	134

TABLE 31

FREQUENCY DISTRIBUTIONS, MEANS, AND STANDARD DEVIATIONS OF FREEDOM OF CHOICE, BY CLASS AND OVERALL

Class	N	Response[a]					Mean	S.D.
		0	1	2	3	4		
1	4	2		1		1	1.500	1.915
2	8					8	4.000	0.000
3	12	5	3	1		3	1.417	1.677
4	19	5		4	1	9	2.474	1.712
5	19	3	7	2		7	2.053	1.615
6	5	5					0.000	0.000
7	21	7	3	10		1	1.286	1.102
8	7	2	2	2		1	1.429	1.397
9	16	9	1	4		2	1.063	1.436
10	9	8	1				0.111	0.333
11	7		1	1		5	3.286	1.254
12	10	8	1	1			0.300	0.675
Overall	137	54	19	26	1	37	1.620	1.637

[a] Code: 0 = freely elected (including "audit"),
1 = recommended by department or faculty,
2 = elected from a required area,
3 = prerequisite to required courses,
4 = required in program of studies.

TABLE 32

FREQUENCY DISTRIBUTIONS, MEANS, AND STANDARD DEVIATIONS OF NUMBER OF COURSES, BY CLASS AND OVERALL

Class	N	Responses[a]					Mean	S.D.
		0	1	2	3	4		
1	4	2	2				0.500	0.577
2	8			1	4	3	3.250	0.707
3	12	6	5		1		0.667	0.888
4	19	11	4	2	1	1	0.790	1.302
5	19	1	1	12		5	2.368	1.116
6	5		1	2	1	1	2.400	1.140
7	21	18	3				0.143	0.359
8	7	4	2	1			1.571	0.787
9	16	14	1	1			0.188	0.544
10	9	9					0.000	0.000
11	7	3	3		1		0.857	1.069
12	10		1	5	3	1	2.400	0.843
Overall	137	68	23	24	11	11	1.153	1.333

[a] Code: 0, 1, 2, 3 = 0, 1, 2, 3 previous courses with the instructor; 4 = 4 or more previous courses.

Age Group

Reference to Table 33 shows that mean ages of students in a class ranged on the scale from a mean of 0.25 to 3.10. Assuming that all those who responded 4 were between 33 and 35 years old, this shows that mean age ranged from about 22 to about 31 years. This is again a good range, and all the response codes were used.

TABLE 33

FREQUENCY DISTRIBUTIONS, MEANS, AND STANDARD DEVIATIONS OF AGE GROUP, BY CLASS AND OVERALL

Class	N	Responses[a]					Mean	S.D.
		0	1	2	3	4		
1	4		3	1			1.250	0.500
2	8	5	3				0.375	0.518
3	12	9	3				0.250	0.452
4	19	1	6	6	1	5	2.158	1.302
5	19	8	8	3			0.737	0.734
6	5	2	1	1		1	1.400	1.673
7	21	2	12	3	1	3	1.571	1.207
8	7		1	2	3	1	2.571	0.976
9	16	5	8	2		1	1.000	1.033
10	9	5	2	1	1		0.778	1.093
11	7	1	1	2		3	2.429	1.618
12	10			3	3	4	3.100	0.876
Overall	137	38	48	24	9	18	1.423	1.316

[a] Code: 0 = 21-23 years old; 1 = 24-26; 2 = 27-29; 3 = 30-32; 4 = 33 and over.

Summary

The classes in the sample were diverse; on all but the Need for Dependence variable, there was a wide range of responses to items both between students and between classes. Furthermore, the characteristics were not highly related, as shown in Table 34. The significant correlations of Year of Study with Number of Courses with the Instructor and Age

TABLE 34

INTERCORRELATIONS OF STUDENT CHARACTERISTICS[a]

Characteristic	2	3	4	5	6
1. Need for Dependence[b]	.01	.09	-.02	.01	.11
2. Year of Study		-.13	-.05	.20	.45
3. Sex[c]			.05	-.25	.08
4. Freedom of Choice[d]				.18	-.04
5. Number of Courses					.05
6. Age Group					

[a] N's range from 134 to 137; $P(r \geqslant .17) = .05$ and $P(r \geqslant .22) = .01$.

[b] High scores indicate high need for dependence.

[c] Coded 0 = male; 1 = female.

[d] High scores indicate low freedom of choice.

Group are probably inevitable; only the significant correlations of Number of Courses with Sex and Freedom of Choice indicate a possible bias in the sample. Correlations of student characteristics with other variables are given under Hypothesis 1 (pp. 208-210) and Hypothesis 6 (pp. 238-245).

Descriptive Data on Course Structure Variables

All instructors responded to the Course Description Questionnaire (Appendix H). The scoring system is given in Appendix I. For each of the seven items, a high score was assigned for high student involvement, responsibility, possibility of influencing the course, and amount of feedback from instructor to students and from students to instructor. Items 1-4 were scored on a 5-point scale, and items 5-7 on a 6-point scale. The maximum possible score was thus 38. Table 35 gives the instructor responses according to the scoring system in Appendix I. Classes ranged in total score from 16 to 32, that is, from largely instructor-centered lecture classes to largely student-centered discussion classes. The instructors described their classes as different. (Some cross validation of instructor descriptions with student descriptions is given by the correlations in Table 24, p.189, and intercorrelations of the course structure variables in Table 23, p. 187.) The classes represented a wide spectrum of teaching styles, as planned and expected (p. 157).

Testing of the Hypotheses

The hypotheses are concerned with finding correlates of, and changes in, student descriptions of ideal instructor behavior (Hypotheses 1-3) and the distribution of ideal behavior descriptions, course assessments, and satisfaction between classes (Hypotheses 4-6). The variables to be used

TABLE 35

INSTRUCTOR RESPONSES TO COURSE DESCRIPTION QUESTIONNAIRE

Course Structure Variable[a]	Class											
	1	2	3	4	5	6	7	8	9	10	11	12
1. Method of Presentation	3	4	4	2	1	1	5	4	3	2	2	4
2. Choice of Topics	3	4	4	3	1	4	4	4	3	4	1	3
3. Preparation of Material	2	3	4	2	1	2	4	3	3	3	2	4
4. Structuring of Topics	2	2	3	4	3	5	5	3	2	3	1	3
5. Means of Assessment	5	5	6	4	2	5	6	4	3	4	1	6
6. Feedback on Written Work	3	6	6	2	5	4	3	6	3	3	5	1
7. Course Evaluation	5	5	2	5	3	5	5	1	4	4	5	6
Total Score	23	29	29	22	16	26	32	25	21	23	17	27

[a] High scores indicate high student involvement.

and the analyses to be carried out in testing the hypotheses were given in Chapter III (pp. 193-196). In this section, the results of testing each of the hypotheses are presented in turn.

Hypothesis 1 There are significant correlations between selected student characteristics and dimension scores for ideal instructor behavior.

Hypothesis partially accepted.

Descriptive class data on the selected student characteristics are given in Tables 28-33 (pp. 199-204), and their intercorrelations in Table 34 (p. 205). Definitions of the variables are on p. 22. Correlations between these variables and pretest and posttest dimension scores for ideal instructor behavior are given in Table 36.

Student characteristics that were significantly correlated ($P < .05$) with any dimension of ideal instructor behavior were Need for Dependence, Sex, Freedom of Choice, and Number of Courses with the Instructor. However, the number of significant correlations is small compared to the total possible. More confidence can be placed in correlations which showed a consistent pattern from pretest to posttest and/or when considered by student and by class. With

TABLE 36

CORRELATIONS OF PRETEST AND POSTTEST DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR WITH STUDENT CHARACTERISTICS, BY STUDENT AND BY CLASS

Student Characteristic	Pretest Dimension Scores (Ideal)				Posttest Dimension Scores (Ideal)			
	IF	WF	C	M	IF	WF	C	M
	By student[a]							
Need for Dependence[b]	.15	.23	.09	.13	.30	.23	.10	.12
Year of Study	.00	-.01	.03	-.01	-.06	-.03	.00	-.13
Sex[c]	.25	.06	.09	.08	.20	-.07	.21	.06
Freedom of Choice[d]	.09	-.04	.07	-.01	.00	-.02	.03	.08
Number of Courses	-.17	-.11	.07	-.10	-.14	-.07	-.08	-.07
Age Group	.09	.12	-.09	-.01	-.01	.08	.03	-.12
	By class[e]							
Need for Dependence[b]	.34	.55	.51	.70	.72	.30	.75	.27
Year of Study	.19	-.03	.05	-.37	-.09	.23	.05	.12
Sex[c]	.41	.48	.49	.63	.66	.22	.55	.41
Freedom of Choice[d]	.22	-.17	.26	.18	.35	.19	.01	.77
Number of Courses	-.01	-.12	.10	.08	-.03	.06	-.03	-.06
Age Group	.27	.47	.16	-.02	.13	.38	.32	.04

[a] N's range from 134 to 137; $P(r \geq .17) = .05$ and $P(r \geq .22) = .01$.

[b] High scores indicate high need for dependence.

[c] Coded 0 = male, 1 = female.

[d] High scores indicate low freedom of choice.

[e] $N = 12$; $P(r \geq .58) = .05$ and $P(r \geq .71) = .01$.

these provisos, and within the limits of the sample, the following conclusions seem justified in respect to this hypothesis:

> Students with a high need for dependence tended to describe their ideal instructor as high in work facilitation and interaction facilitation. Classes with high means on need for dependence appeared to require more considerate behavior.
>
> Female students tended to describe their ideal instructor as high in interaction facilitation. There is some support for the suggestion that classes with more females required more motivation.

It should be noted that these are independent conclusions, since Sex was unrelated to Need for Dependence (Table 34, p. 205).

Hypothesis 2 There are significant class changes in descriptions of ideal behavior from pretest to posttest. Hypothesis largely rejected.

Three statistics were available for testing this hypothesis, namely, changes from pretest to posttest in:

1. mean number of items considered relevant in each class,
2. mean dimension scores in each class,
3. standard deviation of dimension scores in each class.

Class data for these statistics are given in Tables 37-39, respectively.

A few consistent patterns emerge. In Table 37, the majority of class mean changes on Work Facilitation and Consideration are positive. This suggests that more items on these two dimensions were considered relevant on the posttest than on the pretest. In Table 38, the majority of class changes on dimension scores for Work Facilitation and Motivation are negative; these dimensions were considered less important in describing ideal behavior on the posttest than the pretest. In Table 39 there are no consistent patterns.

Tests of significance of these changes were undertaken. Hotelling's T^2 multivariate analog of the t test (Winer, 1971, p. 54) was used to determine whether the changes in each statistic were significantly different from zero. A one-cell design in the MANOVA program was used to make these tests.

The test of significance of class changes in mean number of items considered relevant was performed first, as it was thought possible that changes in this variable might influence the other two. The result of the analysis is

TABLE 37

MEAN NUMBER OF ITEMS CONSIDERED RELEVANT ON PRETEST AND POSTTEST DIMENSIONS OF IDEAL INSTRUCTOR BEHAVIOR, BY CLASS AND OVERALL

Class	N	Interaction Facilitation[a]			Work Facilitation[b]			Consideration[c]			Motivation[d]		
		Pre-test	Post-test	Change	Pre-test	Post-test	Change	Pre-test	Post-test	Change	Pre-test	Post-test	Change
1	4	3.750	4.250	+.500	9.500	9.500	.000	5.500	5.750	+.250	3.250	3.000	-.250
2	8	5.500	6.750	+1.250	8.750	9.875	+1.125	5.625	6.000	+.375	3.875	3.875	.000
3	12	7.000	6.833	-.167	9.333	9.500	+.167	5.667	5.833	+.166	3.917	3.833	-.084
4	19	6.000	6.000	.000	9.316	9.368	+.052	5.526	5.684	+.158	3.105	3.474	+.369
5	19	4.263	4.316	+.053	9.526	9.632	+.106	5.211	5.526	+.315	3.421	3.684	+.263
6	5	3.600	3.000	-.600	8.800	8.600	-.200	5.200	4.800	-.400	3.200	3.600	+.400
7	21	6.143	6.429	+.286	9.381	9.571	+.190	5.524	5.810	+.286	3.476	3.667	+.191
8	7	6.000	6.143	+.143	9.571	9.571	.000	5.571	5.714	+.143	3.429	3.857	+.428
9	16	2.190	5.188	+2.998	8.750	9.000	+.250	5.313	5.438	-.125	3.188	3.250	+.062
10	9	4.000	4.556	+.556	7.444	8.333	+.889	5.000	5.222	+.222	3.000	2.444	-.556
11	7	5.714	5.429	-.285	9.286	9.429	+.143	5.429	5.571	+.142	3.429	3.429	.000
12	10	5.100	5.300	+.200	9.100	9.200	+.100	5.300	5.400	+.100	2.900	3.000	+.100
Over-all	137	5.292	5.526	+.234	9.117	9.343	+.226	5.409	5.598	+.189	3.350	3.467	+.117

[a] Maximum possible is 7.

[b] Maximum possible is 10.

[c] Maximum possible is 6.

[d] Maximum possible is 4.

TABLE 38

MEANS OF PRETEST AND POSTTEST DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR, BY CLASS AND OVERALL

Class	N	Interaction Facilitation			Work Facilitation			Consideration			Motivation		
		Pre-test	Post-test	Change	Pre-test	Post-test	Change	Pre-test	Post-test	Change	Pre-test	Post-test	Change
1	4	3.375	3.008	-.367	3.925	3.967	+.042	4.058	4.175	+.117	3.500	3.792	+.292
2	8	3.665	3.667	+.002	3.813	3.831	+.018	4.458	4.333	-.128	3.958	4.000	+.042
3	12	3.655	3.172	+.057	3.977	3.806	-.171	4.592	4.572	-.020	3.986	3.875	-.111
4	19	3.729	3.530	-.199	4.075	3.833	-.242	4.491	4.304	-.187	3.697	3.627	-.070
5	18	2.994	3.011	+.017	4.135	4.048	-.087	4.606	4.283	-.323	3.750	3.616	-.134
6	5	3.367	3.283	-.084	4.145	4.109	-.036	4.197	4.413	+.216	3.650	3.350	-.300
7	21	3.789	3.914	+.125	4.295	4.170	-.125	4.397	4.463	+.066	3.992	3.901	-.091
8	7	3.854	3.472	-.382	3.865	3.847	-.018	4.600	4.310	-.290	3.774	3.643	-.131
9	15	3.219	3.092	-.027	4.136	3.966	-.170	4.448	4.489	+.041	3.922	3.644	-.278
10	8	3.223	3.251	+.028	3.921	3.654	-.267	4.492	4.279	-.213	3.729	3.385	-.344
11	7	3.353	3.631	+.278	4.308	4.396	+.088	4.598	4.695	+.097	3.869	4.321	+.452
12	9	3.460	3.393	-.067	4.275	3.997	-.278	4.552	4.611	+.059	3.972	3.593	-.379
Overall	133	3.479	3.437	-.042	4.096	3.972	-.124	4.475	4.405	-.070	3.838	3.729	-.109

TABLE 39

STANDARD DEVIATIONS OF PRETEST AND POSTTEST DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR, BY CLASS AND OVERALL

Class	N	Interaction Facilitation			Work Facilitation			Consideration			Motivation		
		Pre-test	Post-test	Change	Pre-test	Post-test	Change	Pre-test	Post-test	Change	Pre-test	Post-test	Change
1	4	.438	.366	-.072	2.86	.180	-.106	.241	.236	-.005	.333	.250	-.083
2	8	.503	.397	-.106	.563	.460	-.103	.312	.463	+.151	.459	.668	+.209
3	12	.325	.529	+.204	.358	.567	+.209	.396	.369	-.027	.475	.447	-.028
4	19	.520	.488	-.032	.428	.548	+.120	.285	.582	+.297	.567	.511	-.056
5	18	.541	.320	-.221	.417	.457	+.040	.370	.417	+.047	.572	.515	-.057
6	5	.960	.526	-.434	.269	.418	+.149	.187	.303	+.116	.487	.627	+.170
7	21	.499	.484	-.015	.410	.437	+.027	.420	.440	+.020	.536	.590	+.054
8	7	.415	.424	+.009	.375	.325	-.050	.294	.325	+.031	.511	.627	+.116
9	15	.734	.841	+.107	.448	.487	+.039	.424	.509	+.085	.518	.712	+.194
10	8	.575	.227	-.348	.530	.303	-.227	.541	.473	-.068	.639	.743	+.104
11	7	.533	.672	+.139	.454	.451	-.003	.361	.194	-.167	.561	.455	-.106
12	9	.419	.419	.000	.397	.475	+.078	.432	.307	-.125	.412	.529	+.117
Overall	133	.595	.591	-.004	.434	.479	+.045	.389	.447	+.058	.527	.591	+.064

shown in Table 40. Since the multivariate test showed that the differences between classes were significant at the .10 level, it was considered appropriate to accept the results of the univariate tests. These showed a significant difference for Consideration at the .02 level, and a difference for Work Facilitation which was almost significant at the .05 level.

Reference back to Table 37 shows that all but one class (class 6) changed positively in the number of Consideration items considered relevant in the description of an ideal

TABLE 40

TEST OF SIGNIFICANCE OF CLASS CHANGES IN MEAN NUMBER OF ITEMS CONSIDERED RELEVANT ON DIMENSIONS OF IDEAL INSTRUCTOR BEHAVIOR

Dimension(s)	d.f.	M.S.	F	P <
		Multivariate		
IF, WF, C, M	4, 8	-	3.012	.086
		Univariate		
IF	1, 11	2.029	2.302	.157
WF	1, 11	0.664	4.553	.056
C	1, 11	0.295	7.785	.018
M	1, 11	0.071	0.861	.373

instructor. This may be an important finding. On the Work Facilitation dimension, two classes (classes 2 and 10) accounted for most the change observed; there was no overall trend.

In view of these findings, tests of the significance of class changes in mean and standard deviation were regarded with some reservation. However, neither test yielded significant F values. For overall changes in mean dimension scores, $F = 2.274$ (d.f. = 4, 8, $P > .15$); for overall changes in standard deviation, $F = 0.669$ (d.f. = 4, 4, $P > .63$). Since these multivariate tests showed no significant differences between classes, the univariate tests were not examined.

The following conclusions are drawn from these analyses:

> The number of items considered relevant on the Consideration dimension of ideal instructor behavior increased from pretest to posttest.
>
> There were no significant class changes in mean dimension scores or in class standard deviations of dimension scores for descriptions of ideal instructor behavior from pretest to posttest.

Additional Comparisons and Analyses Related to Hypothesis 2

It was decided that there were other comparisons and analyses that could be performed to investigate further the changes in descriptions of ideal behavior from pretest to posttest.

Comparisons of Correlations of Ideal and Actual Dimension Scores

Comparisons were made of correlations of pretest and posttest dimension scores for ideal instructor behavior with the corresponding dimension scores for actual instructor behavior (Table 41). If the description of ideal instructor behavior on any dimension changed to become more like actual behavior, then the correlation between posttest ideal and actual behavior should be higher than the correlation between pretest ideal and actual behavior. Using student data first, it is seen from Table 41 that positive changes did occur on each dimension. The test for differences between correlations in a single sample (Glass and Stanley, 1970, p. 313) was used to find if these changes were significantly greater than zero. The probabilities of the observed increases in correlation (or greater) having occurred by chance were found to be .021 (IF), .185 (WF), .026 (C) and

TABLE 41

CORRELATIONS OF DIMENSION SCORES FOR ACTUAL INSTRUCTOR BEHAVIOR WITH CORRESPONDING PRETEST AND POSTTEST DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR, BY STUDENT AND BY CLASS

Dimension Scores (Actual)	Dimension Scores (Ideal)					
	By student[a]			By class[b]		
	Pre-test	Post-test	Change	Pre-test	Post-test	Change
IF	.48	.61	+.13	.81	.86	+.05
WF	.32	.37	+.05	.78	.72	-.06
C	.12	.27	+.15	-.28	-.16	+.12
M	.19	.26	+.07	.43	.24	-.19

[a] N's range from 134 to 137.

[b] N = 12.

.223 (M). The changes on the Interaction Facilitation and Consideration dimensions were therefore significant.

This result gives some support for the hypothesis that the descriptions of ideal behavior on the Interaction Facilitation and Consideration dimensions changed to become more like actual behavior. An alternative explanation is that the instructor's behavior changed to become more like students' ideals. In this study, no overt attempts were made to change instructor behavior and instructors did not receive feedback on their students' ideals until the end of the quarter. However, just reading the IBDQ and thinking about their method of teaching may have influenced instructors' behavior.

Looking secondly at the class data in Table 41, it is seen that any changes occurring by individual student ideals becoming closer to actual instructor behavior are not shown by class means. This was confirmed by a direct comparison of class means on pretest and posttest descriptions of ideal behavior (Table 38, p. 213) and descriptions of actual behavior (Table 21, p. 185): For only 23 of the 48 scores (12 classes on 4 dimensions) was the posttest ideal closer to the actual description than the pretest ideal, a purely chance proportion.

The following conclusion is drawn.

> There is some support for the suggestion that student descriptions of ideal instructor behavior may have changed to become more similar to actual instructor behavior on the Interaction Facilitation and Consideration dimensions, but this change was not shown in class mean changes.

Comparisons and Analyses on Number of Items Considered Relevant

A comparison can be made between the analyses of variance of numbers of items considered relevant by class in pretest (Table 51, p.233) and posttest (Table 42) descriptions of ideal instructor behavior. Both analyses show overall differences significant at the .001 level, but different dimensions were individually significant on pretest and posttest. Interaction Facilitation was significant on both pretest and posttest, but Work Facilitation was significant on the pretest only and Consideration and Motivation were significant on the posttest only. These different patterns also suggest that some changes were occurring in ideal descriptions from pretest to posttest.

TABLE 42

MULTIVARIATE AND UNIVARIATE ANALYSIS OF VARANCE OF NUMBER OF ITEMS CONSIDERED RELEVANT IN POSTTEST DESCRIPTIONS OF IDEAL INSTRUCTOR BEHAVIOR, BY CLASS

Dimension(s)	d.f.	M.S.	F	P<
		Multivariate		
IF, WF, C, M	44, 468.7	-	2.006	.001
		Univariate		
IF	11, 125	12.151	4.892	.001
WF	11, 125	1.799	1.270	.250
C	11, 125	0.781	2.546	.006
M	11, 125	1.733	2.232	.017

Most of the posttest differences may have been caused by initial differences in numbers of items considered relevant. To test this hypothesis, it was decided to use analysis of covariance of the posttest data with pretest Interaction Facilitation and Work Facilitation data as covariates. These variables were chosen because they were the ones contributing most of the significant difference on the pretest (Table 51, p. 233) and because they had the highest correlations between pretest and posttest ideals (Table 16, p. 180). (The first reason may, in fact, invalidate this analysis, as Lord (1967) has warned.) However, since a test of homogeneity of regression showed significant differences between classes ($F = 1.408$, d.f. = 44, 422.8, $P < .049$), it was decided that the analysis of covariance might not be appropriate. An alternative attempt to take account of initial differences in number relevant, using a random sample of students, is described on p. 224.

Comparisons and Analyses on Dimension Scores

Inspection of analyses of variance of pretest (Table 53, p. 235) and posttest (Table 43) descriptions of ideal behavior again suggested changes between the two test occasions. Differences on the Interaction Facilitation

TABLE 43

MULTIVARIATE AND UNIVARIATE ANALYSIS OF VARIANCE OF POSTTEST DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR, BY CLASS

Dimension(s)	d.f.	M.S.	F	P <
		Multivariate		
IF, WF, C, M	44, 453.4	-	2.091	.001
		Univariate		
IF	11, 121	1.157	4.393	.001
WF	11, 121	0.369	1.702	.081
C	11, 121	0.216	1.125	.348
M	11, 121	0.577	1.745	.071

dimension were significant at the .001 level on both tests, but differences on Work Facilitation and Motivation, which were not significant on the pretest, became significant at the .10 level on the posttest.

Analysis of covariance of posttest dimension scores, using pretest Interaction Facilitation scores as covariates, is shown in Table 44. (Homogeneity of regression was not rejected: $F = 1.186$, d.f. = 44, 403.7, $P > .200$.) Taking out the effect of initial differences on Interaction Facilitation, there was still an overall difference between classes which was significant at the .02 level. For the univariate tests, the difference was only significant ($P < .05$) on the

Interaction Facilitation dimension.

The analysis was repeated using both Interaction Facilitation and Work Facilitation as covariates. The overall F value was 1.406 (d.f. = 44, 438.1, P < .049) and again only the Interaction Facilitation difference was significant (F = 2.182, d.f. = 11, 117, P < .020).

TABLE 44

MULTIVARIATE AND UNIVARIATE ANALYSIS OF COVARIANCE OF POSTTEST DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR, USING PRETEST INTERACTION FACILITATION SCORE AS COVARIATE, BY CLASS

Dimension(s)	d.f.	M.S.	F	P <
	Multivariate			
Regression	4, 115.0	-	15.044	.001
IF, WF, C, M	44, 441.9	-	1.560	.015
	Univariate			
IF	11, 118	0.391	2.120	.024
WF	11, 118	0.392	1.812	.059
C	11, 118	0.229	1.299	.233
M	11, 118	0.491	1.548	.124

The following conclusion is drawn:

> Taking into account pretest scores on Interaction Facilitation and Work Facilitation dimensions, there were still significant differences (P < .05) on posttest scores on Interaction Facilitation.

Analysis of Random Sample from Six Classes

A further analysis was undertaken using individual student data instead of class means. The number of items considered relevant on each dimension, and dimension scores, were compared for pretest and posttest descriptions of ideal instructor behavior. Computer program limitations necessitated equal numbers of students per class and not more than 50 students altogether. This requirement was met by using the classes with the largest numbers of students, arbitrarily excluding one class to give one class per subject area: The classes chosen were 2, 4, 5, 7, 9 and 12. A random sample of eight students was then drawn from each of these classes.

Pretest and posttest number of items relevant on each dimension of ideal behavior descriptions were analyzed using a two-way analysis of variance with repeated measures on the test factor. Results are shown in Table 45. Overall, differences between classes were significant but differences between the pretest and posttest, and the interaction between class and test, were not significant. Univariate tests were therefore not examined.

The same kind of analysis was used for pretest and posttest dimension scores. Results are shown in Table 46.

TABLE 45

MULTIVARIATE ANALYSIS OF VARIANCE OF NUMBER OF ITEMS CONSIDERED RELEVANT IN DESCRIPTIONS OF IDEAL INSTRUCTOR BEHAVIOR, BY CLASS AND BY TEST WITH REPEATED MEASURES ON TESTS, ON RANDOM SAMPLES OF 8 SUBJECTS FROM 6 CLASSES

Source	Error Term	d.f.	F	P <
Between classes	Subjects within classes	20, 130.3	1.774	.030
Between tests (T)	T x Subjects within classes	4, 39.0	1.557	.205
Interaction (C x T)	T x Subjects within classes	20, 130.3	0.915	.569

TABLE 46

MULTIVARIATE ANALYSIS OF VARIANCE OF DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR, BY CLASS AND BY TEST WITH REPEATED MEASURES ON TESTS, ON RANDOM SAMPLES OF 8 SUBJECTS FROM 6 CLASSES

Source	Error Term	d.f.	F	P <
Between classes (C)	Subjects within classes	20, 130.3	2.198	.004
Between tests (T)	T x Subjects within classes	4, 39.0	2.007	.113
Interaction (C x T)	T x Subjects within classes	20, 130.3	1.243	.230

Overall, differences between classes were again significant but not the differences between pretest and posttest nor the interaction between class and test. Univariate tests were therefore not examined.

The following conclusion is drawn from this analysis.

> In the random sample chosen, there were no differences in number of items considered relevant or on dimension scores of ideal instructor behavior between pretest and posttest.

Hypothesis 3 There are significant correlations between course structure variables and class changes in descriptions of ideal instructor behavior from pretest to posttest.

Hypothesis partially accepted.

This hypothesis was tested by finding the correlations of course structure variables with class changes in mean number relevant (Table 47), mean dimension scores (Table 48), and standard deviation of dimension scores (Table 49).

Reference to Table 47 shows no significant correlations of change in mean number relevant on dimensions of ideal instructor behavior with course structure variables. Table 48 shows two significant correlations ($P < .05$) of change in mean dimension scores with course structure variables. Table 49 shows one significant correlation, and a second one

TABLE 47

CORRELATIONS OF CHANGE IN MEAN NUMBER OF ITEMS CONSIDERED RELEVANT IN DESCRIPTIONS OF IDEAL INSTRUCTOR BEHAVIOR WITH COURSE STRUCTURE VARIABLES[a]

Course Structure Variable	Dimension			
	IF	WF	C	M
Method of Presentation	.24	.20	.41	-.06
Choice of Topics	.10	.26	-.18	-.09
Preparation of Material	.18	.24	.12	-.20
Structuring of Topics	-.39	-.32	-.43	.46
Means of Assessment	-.10	.04	-.09	-.05
Feedback on Written Work	-.13	.19	.13	.10
Course Evaluation	-.04	.10	-.12	-.13
Total Score	-.04	.19	-.03	.02

[a] $N = 12$; $P(r \geqslant .58) = .05$.

TABLE 48

CORRELATIONS OF CHANGE IN MEAN DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR WITH COURSE STRUCTURE VARIABLES[a]

Course Structure Variable	Dimension			
	IF	WF	C	M
Method of Presentation	-.06	-.08	.09	-.01
Choice of Topics	-.32	-.26	.09	-.45
Preparation of Material	.15	-.43	.19	-.36
Structuring of Topics	-.11	-.38	.10	-.55
Means of Assessment	-.27	-.33	.32	-.38
Feedback on Written Work	.12	.61	-.28	.33
Course Evaluation	.24	-.06	.59	.12
Total Score	-.06	-.18	.30	-.29

[a] $N = 12$; $P(r \geqslant .58) = .05$.

almost significant at the .05 level, between change in standard deviation of dimension scores and course structure variables. The paucity of significant correlations makes any definite conclusions unwarranted, but some relations will be discussed in more detail.

TABLE 49

CORRELATIONS OF CHANGE IN STANDARD DEVIATION OF DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR WITH COURSE STRUCTURE VARIABLES[a]

Course Structure Variable	Dimension			
	IF	WF	C	M
Method of Presentation	.57	-.04	-.16	.25
Choice of Topics	-.17	-.06	.26	.60
Preparation of Material	.41	.08	-.28	.41
Structuring of Topics	-.45	.45	.40	.19
Means of Assessment	-.04	.24	.10	.33
Feedback on Written Work	.13	.01	-.01	-.01
Course Evaluation	-.20	-.04	.01	.04
Total Score	.06	.17	.09	.45

[a] N = 12; P(r ≥ .58) = .05.

In Table 48, the correlation between Feedback on Written Work and change in mean dimension score on Work Facilitation suggests that students in classes where the instructor gave a lot of feedback on written work and allowed class time to go over examinations or papers changed to describe their ideal instructors as higher on Work Facilitation. Such an explanation would require that Feedback on Written Work be significantly correlated with descriptions of actual behavior on the Work Facilitation dimension. Reference to Table 24 (p. 189) shows that this was not the case, however. It is difficult to reconcile the two findings.

In Table 48, the correlation between Course Evaluation and change in mean score on the Consideration dimension suggests that students in classes where the instructor encouraged evaluative feedback from his students changed to describing their ideal instructor as higher on Consideration on the posttest than the pretest. Again posttest ideals may have been influenced by actual instructor behavior, but since Course Evaluation was not related to descriptions of actual instructor behavior (Table 24, p. 189), this seems unlikely to have been the case.

Table 49 shows that there was an almost significant correlation between Method of Presentation and change (in this case, increase) in standard deviation of Motivation dimension scores for ideal instructor behavior. A similar reasoning as was employed above could be used. More student freedom in choice of topics may have been welcomed by some students but found threatening by others. An instructor who allowed students to decide on topics may have been seen as motivating by some students but not by others. However, the absence of a significant correlation between Choice of Topics and Motivation scores for actual instructor behavior (Table 24, p. 189) throws doubt on this explanation.

The following conclusion may be drawn.

> There were no clear correlations between course structure variables and class changes in descriptions of ideal instructor behavior. There is a suggestion that Method of Presentation as reported by the instructor may have been related to changes in the student descriptions of ideal behavior on the Interaction Facilitation dimension which led to a wider spread of scores on the posttest than the pretest.

Hypothesis 4 There are significant differences between classes in pretest descriptions of ideal instructor behavior.

Hypothesis partially accepted.

The differences were measured by two statistics: number of items considered relevant and dimension scores for ideal instructor behavior.

Number of Items Considered Relevant

Means and standard deviations of number of items considered relevant on pretest dimensions of ideal instructor behavior are given in Table 50, and the analysis of variance in Table 51. There was a significant difference between classes, overall ($P < .001$) and on two of the dimensions: Interaction Facilitation ($P < .001$) and Work Facilitation ($P < .01$). The following conclusion can be drawn in regard to Hypothesis 4.

> Students in different classes showed significant differences on the pretest in the number of items considered relevant in describing an ideal instructor on the dimensions of Interaction Facilitation and Work Facilitation.

Dimension scores

Means and standard deviations of pretest dimension scores for ideal instructor behavior are given in Table 52, and the analysis of variance in Table 53. There was a significant difference between classes, overall ($P < .001$) and on one of the dimensions: Interaction Facilitation ($P < .001$). The following conclusion can be drawn.

> Students in different classes showed significant differences on pretest dimension scores for ideal instructor behavior on the Interaction Facilitation dimension but not on the other three dimensions.

TABLE 50

MEANS AND STANDARD DEVIATIONS OF NUMBER OF ITEMS CONSIDERED RELEVANT ON PRETEST DIMENSIONS OF IDEAL INSTRUCTOR BEHAVIOR, BY CLASS AND OVERALL

Class	N		Pretest Dimension (Ideal)			
			IF	WF	C	M
1	4	M	3.750	9.500	5.500	3.250
		SD	2.217	0.577	0.577	0.500
2	8	M	5.500	8.750	5.625	3.875
		SD	2.000	1.282	0.518	0.354
3	12	M	7.000	9.333	5.667	3.917
		SD	0.000	1.073	0.492	0.289
4	19	M	6.000	9.316	5.526	3.105
		SD	0.943	1.157	0.697	0.809
5	19	M	4.263	9.526	5.211	3.421
		SD	1.996	0.841	0.631	0.769
6	5	M	3.600	8.800	5.200	3.200
		SD	2.302	1.095	0.837	1.304
7	21	M	6.143	9.381	5.524	3.476
		SD	1.062	0.921	0.602	0.873
8	7	M	6.000	9.571	5.571	3.429
		SD	1.155	0.535	0.787	0.535
9	16	M	4.438	8.570	5.313	3.188
		SD	2.190	1.483	1.014	1.109
10	9	M	4.000	7.444	5.000	3.000
		SD	2.345	2.007	0.707	1.414
11	7	M	5.714	9.286	5.429	3.429
		SD	1.380	0.951	0.787	0.787
12	10	M	5.100	9.100	5.300	2.900
		SD	1.449	1.287	1.059	1.197
Over-all	137	M	5.292	9.117	5.409	3.350
		SD	1.848	1.237	0.733	0.904

TABLE 51

MULTIVARIATE AND UNIVARIATE ANALYSIS OF VARIANCE OF NUMBER OF ITEMS CONSIDERED RELEVANT IN PRETEST DESCRIPTIONS OF IDEAL INSTRUCTOR BEHAVIOR, BY CLASS

Dimension	d.f.	M.S.	F	P <
		Multivariate		
IF, WF, C, M	44, 486.7	-	2.166	.001
		Univariate		
IF	11, 125	12.350	4.700	.001
WF	11, 125	3.373	2.465	.008
C	11, 125	0.424	0.775	.664
M	11, 125	1.038	1.300	.232

Hypothesis 5 There are significant differences between classes on course assessment and on satisfaction scores. Hypothesis partially accepted.

Course Assessment

Means and standard deviations of course assessment scores are given in Table 54, and the analysis of variance in Table 55. The range of class means of assessment scores was very narrow (3.852 to 4.933) considering that a 5-point scale was used. However, except for class 1, the standard deviations were small and a significant difference ($P < .001$) between classes was found. Because the class means were so close it is not known whether the pattern within classes

TABLE 52

MEANS AND STANDARD DEVIATIONS OF PRETEST DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR, BY CLASS AND OVERALL

Class	N		Pretest Dimension Scores (Ideal)			
			IF	WF	C	M
1	4	M	3.375	3.925	4.058	3.500
		SD	0.438	0.286	0.241	0.333
2	8	M	3.665	3.813	4.458	3.958
		SD	0.503	0.563	0.312	0.459
3	12	M	3.655	3.977	4.592	3.986
		SD	0.325	0.358	0.396	0.475
4	19	M	3.729	4.075	4.491	3.697
		SD	0.520	0.428	0.285	0.567
5	18	M	2.994	4.135	4.606	3.750
		SD	0.541	0.417	0.370	0.572
6	5	M	3.367	4.145	4.197	3.650
		SD	0.960	0.269	0.187	0.487
7	21	M	3.789	4.295	4.397	3.992
		SD	0.499	0.410	0.420	0.536
8	7	M	3.854	3.865	4.600	3.774
		SD	0.415	0.375	0.294	0.511
9	16	M	3.219	4.136	4.448	3.922
		SD	0.734	0.448	0.424	0.518
10	8	M	3.223	3.921	4.492	3.729
		SD	0.575	0.530	0.541	0.639
11	7	M	3.353	4.308	4.598	3.869
		SD	0.533	0.454	0.361	0.561
12	9	M	3.460	4.275	4.552	3.972
		SD	0.419	0.397	0.432	0.412
Over-all	134	M	3.479	4.096	4.475	3.839
		SD	0.595	0.434	0.389	0.527

TABLE 53

MULTIVARIATE AND UNIVARIATE ANALYSIS OF VARIANCE OF PRETEST DIMENSION SCORES FOR IDEAL INSTRUCTOR BEHAVIOR, BY CLASS

Dimension(s)	d.f.	M.S.	F	P <
		Multivariate		
IF, WF, C, M	44, 457.2	-	2.004	.001
		Univariate		
IF	11, 122	0.991	3.308	.001
WF	11, 122	0.277	1.531	.129
C	11, 122	0.178	1.235	.271
M	11, 122	0.221	0.791	.649

would be the same on another occasion to give a similar significant difference. The following conclusion is drawn.

> Students in different classes showed significant differences in course assessment scores.

Satisfaction Scores

Four student satisfaction scores (one for each dimension of instructor behavior, p.175) were used in testing this hypothesis. Means and standard deviations of satisfaction scores on each dimension are given in Table 56, and the analysis of variance is given in Table 57. Since the multivariate test showed differences which were significant at the .10 level, it was considered legitimate to look at

TABLE 54

MEANS AND STANDARD DEVIATIONS OF COURSE ASSESSMENT SCORES, BY CLASS AND OVERALL

Class	N	Mean	Standard Deviation
1	4	4.125	1.436
2	8	4.146	0.393
3	12	4.014	0.625
4	19	4.430	0.472
5	19	4.158	0.473
6	5	4.933	0.091
7	21	4.571	0.539
8	7	4.643	0.402
9	16	4.354	0.551
10	9	3.852	0.412
11	7	4.643	0.495
12	10	4.833	0.283
Overall	137	4.375	0.580

TABLE 55

ANALYSIS OF VARIANCE OF COURSE ASSESSMENT SCORES, BY CLASS

Source	d.f.	M.S.	F	P<
Between Classes	11	1.012	3.664	.001
Within Classes	125	0.276		

TABLE 56

MEANS AND STANDARD DEVIATIONS OF SATISFACTION SCORES BY CLASS AND OVERALL

Class	N		Dimension (Satisfaction)			
			IF	WF	C	M
1	4	M	87.500	71.390	90.832	72.918
		SD	25.000	16.933	10.673	20.833
2	8	M	92.856	95.000	91.665	84.373
		SD	10.799	5.345	8.910	22.903
3	12	M	88.333	86.772	97.222	93.750
		SD	16.592	17.267	6.489	11.307
4	19	M	85.087	88.246	89.648	73.684
		SD	14.673	9.560	10.709	31.704
5	18	M	72.063	88.867	80.924	75.926
		SD	37.321	10.905	16.522	31.557
6	5	M	78.334	89.112	86.000	90.000
		SD	21.730	13.616	14.219	22.361
7	21	M	87.300	89.987	93.491	70.238
		SD	22.491	14.524	10.027	28.574
8	7	M	86.597	84.490	92.856	80.953
		SD	10.369	9.419	8.910	13.362
9	15	M	87.539	88.815	90.000	86.111
		SD	20.575	10.436	17.503	19.072
10	8	M	95.834	85.104	86.875	86.459
		SD	11.784	15.852	15.338	19.889
11	7	M	86.937	83.929	74.286	78.573
		SD	15.551	18.019	23.310	15.104
12	9	M	92.196	91.420	95.926	76.852
		SD	12.098	7.043	8.128	31.944
Overall	133	M	85.557	87.802	89.378	79.664
		SD	21.642	12.944	14.243	25.394

the univariate tests. These show that there was a significant difference between classes on the Consideration dimension only ($P < .01$).

> Students in different classes showed significant differences in satisfaction on the Consideration dimension but not on the other three dimensions.

TABLE 57

MULTIVARIATE AND UNIVARIATE ANALYSIS OF VARIANCE OF SATISFACTION SCORES, BY CLASS

Dimension	d.f.	M.S.	F	P <
		Multivariate		
IF, WF, C, M	44, 453.4	-	1.373	.061
		Univariate		
IF	11, 121	495.563	1.081	.382
WF	11, 121	181.949	1.151	.328
C	11, 121	419.006	2.404	.010
M	11, 121	650.215	1.006	.445

Hypothesis 6 There are significant correlations between course assessment and satisfaction scores, and selected student characteristics and course structure variables.

Hypothesis partially accepted.

Correlations of Assessment and Satisfaction Scores with Student Characteristics

The correlations of course assessment and overall satisfaction scores with student characteristics are shown in Table 58. Assessment score is operationally defined on p.173 and overall satisfaction score on p. 177.

Student characteristics that were significantly related ($P < .05$) to either course assessment or overall satisfaction scores were Need for Dependence, Sex, Freedom of Choice, and Age Group. Correlations which show a consistent pattern using the student and the class data are few. These correlations are described below.

> There was a positive correlation between students' need for dependence and their course assessment and overall satisfaction scores. Students requiring more guidance from an instructor tended to give him higher ratings than those who were more independent.
>
> Older students tended to give higher course assessment scores but not higher overall satisfaction scores.
>
> There is weak support for associations between female students and a high course assessment, and between required courses and low course assessment. These relations were shown in student data, but not in class data.

TABLE 58

CORRELATIONS OF STUDENT CHARACTERISTICS WITH COURSE ASSESSMENT AND OVERALL SATISFACTION SCORES, BY STUDENT AND BY CLASS

Student Characteristic	Assessment Score	Overall Satisfaction Score
By student[a]		
Need for Dependence[b]	.21	.22
Year of Study	.07	.06
Sex[c]	.19	-.05
Freedom of Choice[d]	-.24	-.13
Number of Courses	-.06	.03
Age Group	.27	-.02
By class[e]		
Need for Dependence[b]	.46	.54
Year of Study	.49	-.45
Sex[c]	.18	.26
Freedom of Choice[d]	-.19	-.10
Number of Courses	.31	.23
Age Group	.76	-.20

[a] N's range from 134 to 137; $P(r \geqslant .17) = .05$ and $P(r \geqslant .22) = .01$.

[b] High scores indicate high need for dependence.

[c] Coded 0 = male, 1 = female.

[d] High scores indicate low freedom of choice.

[e] $N = 12$; $P(r \geqslant .58) = .05$ and $P(r \geqslant .71) = .01$.

Correlations of Assessment and Satisfaction Scores with Course Structure Variables

Course structure variables were class variables, so only class correlations with assessment and satisfaction are given in Table 59. Satisfaction scores on each dimension and overall are included. The following conclusions are drawn.

> These was no significant correlation between course assessment and any course structure variable.
>
> Satisfaction on the Interaction Facilitation dimension was significantly associated with a more discussion-centered class (Method of Presentation) and high student involvement (Preparation of Material).
>
> Satisfaction on the Consideration dimension was significantly associated with student involvement in Method of Presentation, Choice of Topics, Preparation of Material, Means of Assessment, and overall student-centered classroom practices (Total Score).
>
> Satisfaction on the Work Facilitation and Motivation dimensions was not correlated with any of the course structure variables.
>
> Overall satisfaction was significantly associated with student involvement in Choice of Topics, Preparation of Material, and overall student-centered classroom practices (Total Score).

TABLE 59

CORRELATIONS OF COURSE STRUCTURE VARIABLES WITH COURSE ASSESSMENT AND CLASS SATISFACTION SCORES[a]

Course Structure Variable	Course Assess- ment	Satisfaction				
		IF	WF	C	M	Over- all
Method of Presentation	.01	.63	.12	.71	-.23	.50
Choice of Topics	-.05	.51	.13	.72	.32	.66
Preparation of Material	.04	.75	.25	.71	.08	.73
Structuring of Topics	.34	-.16	.29	.34	.02	.29
Means of Assessment	.04	.39	.03	.88	.14	.56
Feedback on Written Work	-.23	-.16	.18	-.18	.38	.07
Course Evaluation	.29	.09	.02	-.11	-.28	-.05
Total Score	.10	.50	.27	.78	.13	.70

[a] $N = 12$; $P(r \geqslant .58) = .05$ and $P(r \geqslant .71) = .01$.

Additional Correlations Related to Hypothesis 6

The correlations between course assessment scores and satisfaction scores are shown in Table 60. All the correlations are low, and only one of them is significantly different from zero. The following conclusion is drawn:

> Course assessment and satisfaction scores were independent evaluations of instruction.

TABLE 60

CORRELATIONS OF SATISFACTION SCORES WITH COURSE ASSESSMENT SCORES, BY STUDENT AND BY CLASS

Course Assessment	Satisfaction				
	IF	WF	C	M	Over-all
By student[a]	.01	.10	.18	.07	.15
By class[b]	-.32	.16	-.01	.03	.00

[a] N's range from 134 to 137; $P(r \geq .17) = .05$.

[b] $N = 12$; $P(r \geq .58) = .05$.

Correlations of Assessment and Satisfaction Scores with Dimension Scores for Actual Instructor Behavior

The correlations of course assessment scores and satisfaction scores with dimension scores for actual

actual instructor behavior are shown in Table 61. All but one of the correlations in the student data between assessment scores and dimension of actual instructor behavior and

TABLE 61

CORRELATIONS OF DIMENSION SCORES FOR ACTUAL INSTRUCTOR BEHAVIOR WITH COURSE ASSESSMENT SCORES AND SATISFACTION SCORES, BY STUDENT AND BY CLASS

Score	Dimension Scores (Actual)			
	IF	WF	C	M
	By student[a]			
Assessment	.24	.73	.21	.31
Satisfaction				
IF	.22	-.02	.10	.17
WF	.05	.07	.03	-.11
C	.30	.10	.51	.14
M	.10	.07	.11	.44
Overall	.27	.11	.29	.22
	By class[b]			
Assessment	.19	.91	-.02	.20
Satisfaction				
IF	.71	-.22	.49	.49
WF	.44	.17	.05	.14
C	.41	-.11	.80	-.10
M	-.09	-.15	.25	.28
Overall	.65	-.04	.61	.30

[a] N's range from 134 to 137; $P(r \geq .17) = .05$, $P(r \geq .22) = .01$, and $P(r \geq .29) = .001$.

[b] $N = 12$; $P(r \geq .58) = .05$, $P(r \geq .71) = .01$, and $P(r \geq .82) = .001$.

between overall satisfaction and actual behavior were significant at the .01 level. Both of these evaluations of course instruction were therefore significantly related to actual instructor behavior.

More confidence can be placed on those correlations which were also significant in the class data. On this basis, the following conclusions are drawn:

> Assessment scores were very highly correlated ($P < .001$) with dimension scores on the Work Facilitation dimension of actual behavior. Students were mainly assessing the course on the basis of general instructor-led class procedure as described by the Work Facilitation items.
>
> Satisfaction scores on the Interaction Facilitation and Consideration dimensions were correlated at the .01 level of significance with scores on the corresponding dimensions of actual instructor behavior. The overall satisfaction score was correlated at the .05 level with dimension scores for Interaction Facilitation and Consideration of actual instructor behavior.

Summary of Results

Each of the hypotheses has been partially supported. Correlations with descriptions of ideal instructor behavior were found for need for dependence and sex. Class means changed in number of items considered relevant on the Consideration dimension of ideal instructor behavior. There was some indication that actual instructor behavior influenced changes in student descriptions of ideal instructor behavior but in some cases this was toward and sometimes away from actual behavior. There was weak support for the suggestion that in classes with more student involvement, changes in student descriptions of ideal instructor behavior occurred on the Interaction Facilitation dimension, leading to a wider spread of scores on the posttest than on the pretest on this dimension. Classes in the sample were different in pretest ideals on Interaction Facilitation and Work Facilitation, and taking out these original differences there were still significant differences on posttest scores on Interaction Facilitation.

Courses were described as different in terms of course assessment scores and of satisfaction on the Consideration dimension. Students with higher need for dependence gave higher course assessments and had higher satisfaction scores. Older students gave higher course assessments but not higher overall satisfaction scores than younger students. There was weak support for associations between female students and high course assessment scores and between elected courses and high course assessment scores. Assessment scores and satisfaction scores were independent of each other. High assessment scores were associated with high Work Facilitation scores, but not with high student involvement as indicated by course structure variables. High overall satisfaction scores were associated with high student involvement and responsibility and high scores on the Interaction Facilitation and Consideration dimensions of actual instructor behavior.

A coordination of these results and others from the study, and a discussion of their relation to the literature, are given in Chapter V.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

At the beginning of Chapter I, the question was posed, "Is the present data collected from students the most appropriate for the purposes for which it is used?" It was argued that if students returned information on ideal instructor behavior as well as on actual instructor behavior, then the usefulness of evaluative data would be increased (pp. 1-4). The decision to collect information on how students felt an instructor should behave to best help them to learn raised further questions which led to the formulation of the problems and hypotheses for this study (pp. 16-19).

An extensive review of the psychological and educational literature concerned with effective leadership and teaching was undertaken. It was found that any relations of traits and behaviors to desired outcomes were not direct, but that situational variables such as individual group member ideals were also involved.

To collect student descriptions of ideal and actual instructor behavior, a new instrument, the Instructor Behavior Description Questionnaire (IBDQ) was developed, based on four dimensions of behavior identified from the literature: Interaction Facilitation, Work Facilitation, Consideration, and Motivation. A trial form of the IBDQ was used with undergraduates in a pilot study, and the final form with graduates in the main study. The factor structure was very similar in the two studies, and lent considerable validity to the original formulation.

The main study used a non-random sample of twelve graduate classes from a range of subject areas. From the review of the literature (pp. 93-136), it was expected that student descriptions of ideal instructor behavior would differ, that these differences might be related to variables such as need for dependence and sex, and that ideals might change on contact with actual instructor behavior. Using the final form of the IBDQ, student descriptions of ideal behavior were collected on two occasions seven weeks apart and descriptions of actual behavior on the second occasion. Student variables that might be correlated with ideals, and course structure variables describing degree of student involvement that might be related to changes in ideals, were also collected.

The fit or match between ideal and actual instructor behavior was used to define student satisfaction. A satisfaction score was calculated for each dimension of instructor behavior by taking the percentage of those items of behavior considered relevant to the description of an ideal instructor on which the frequency of actual behavior matched the importance of the ideal behavior (pp. 175-177). A traditional course assessment score was also obtained for each student, and the two evaluations of instruction were compared. The relations of satisfaction and course assessment scores to student characteristics and to course structure variables were also examined.

To investigate differences between classes on ideal and actual instructor behavior descriptions, and changes in ideals over time, class mean scores on the items considered relevant on each dimension were calculated. Changes in ideals were also measured by differences in class means on number of items considered relevant and in class standard deviations of dimension scores. Classes with more student involvement were expected to change more in ideals, and so relations with course structure variables were investigated.

The formal definitions of the variables used in the study are given on pp. 19-22 and their operational definitions on pp. 170-177. Chapter III describes the development of the IBDQ, its use in the pilot study and in the main study, and reliability and validity estimates (pp. 178-190). Results from the testing of the hypotheses are given in Chapter IV.

Discussion of Results

This section coordinates results from the testing of the hypotheses (Chapter IV) and some of the findings reported in Chapter III. These results are discussed in the light of the review of the literature (Chapter II).

Student Characteristics

Need for Dependence

> Students with a high need for dependence tended to describe their ideal instructor as high on dimensions of Interaction Facilitation, Work Facilitation, and Consideration. They gave higher course assessments, and had higher overall satisfaction scores.

Students who had a high need for dependence required more from their instructors. The association between high need for dependence and high scores on Interaction Facilitation appears to contradict the results of Vroom (1959) and others discussed on pp. 110-113. One possible explanation is that students who depend on others may want to ask the instructor questions about what is expected of them and thus reduce role ambiguity (pp. 123-126). A certain degree of openness is necessary if students are to be allowed to ask that kind of question.

The relation between need for dependence and Work Facilitation scores was expected from the items used to measure the two variables: The first includes items on need for structure and direction and the second includes items on degree of structure and instructor guidance which is seen to be provided.

The relation between need for dependence and Consideration scores supports the discussion on pp. 98-103. Maslow (1943, 1954, 1962) described persons whose basic needs were not satisfied as having considerable dependence on others. This need for dependence is shown by a higher requirement for considerate behavior from the instructor.

Students with high need for dependence were less critical of instruction than more independent students: They gave more favorable course assessments and had higher satisfaction scores. Perhaps they asked for more from their instructors--and got it.

Sex

> Female students tended to describe their ideal instructor as high on the dimension of Interaction Facilitation.

There was no significant correlation showing females to be high in need for dependence, so this finding can be interpreted independently from those above.

The Interaction Facilitation dimension describes student discussion and participation of students in planning learning goals. This finding is therefore similar to that reported by McLeish (1966) that women teachers preferred tutorials and seminars, but different from that of Solomon et al. (1963) that women did better in more structured settings (p. 96).

Age

> Older students tended to give higher course assessments, but overall satisfaction scores were independent of age.

Older students may be more lenient toward instructors when it comes to course assessment, having had a wider experience of the problems involved. Alternatively, the difference may simply be a result of the distribution of the older students in the particular classes used in this sample.

There were no significant correlations between descriptions of ideal instructor behavior and age, and only one low correlation between actual behavior and age. When ideal and actual behavior are compared to give satisfaction, no significant relation to age would therefore be expected.

Changes in Ideals

> Student descriptions of ideal instructor behavior did not change in any clear way between the pretest and the posttest. Students' ideals became more closely related to actual instructor behavior on two dimensions, but class mean dimension scores did not change significantly. The results of other analyses were inconclusive.

Using student data, the correlations between posttest ideal and actual behavior descriptions were significantly higher than those between pretest ideal and actual behavior descriptions on the dimensions of Interaction Facilitation and Consideration. Comparisons of correlations using class data, however, did not show any significant changes.

No differences between pretest and posttest descriptions of ideal behavior were found in class mean dimension scores or class standard deviations. There was an increase from pretest to posttest in the number of items considered relevant on the Consideration dimension of ideal behavior but this was only one significant change out of twelve possible changes investigated. Analysis of variance using student data from a random sample of 48 students found no changes from pretest to posttest in number of items considered relevant or in dimension scores.

There were positive correlations between student involvement in method of presentation and class increases in standard deviation on Interaction Facilitation dimension scores but this again was one significant correlation out of many correlations examined. Posttest differences between classes on Interaction Facilitation dimension scores were still found when initial differences on Interaction Facilitation and Work Facilitation had been taken into account using analysis of covariance.

On p. 134 reference was made to Stogdill's suggestion (1959) that group member performance might become more like the group norm, and to Festinger's theory of cognitive dissonance (1950, 1959). The present research indicates that ideals are fairly stable as measured seven weeks apart. Some analyses indicated that there may have been changes, but it was difficult to find an integrated explanation for these changes.

Interaction Facilitation

> Students in different classes preferred different amounts of interaction facilitation as measured by pretest number of items relevant and scores on this dimension of ideal instructor behavior. Pretest Interaction Facilitation scores for ideal instructor behavior were significantly correlated with scores for actual instructor behavior on this dimension.

The most significant differences between classes on pretest descriptions of ideal instructor behavior were on the Interaction Facilitation dimension. Class differences on this dimension were shown both in number of items considered relevant and in the importance of the behaviors described by those items. Thus there was more difference between classes than within classes on this dimension.

The high correlation between pretest ideals and actual instructor behavior seven weeks later suggests a reason for this result. Students may have been aware ahead of time how much interaction facilitation there would be in a class--they had certain expectations depending upon the subject area. They may have self-selected themselves into classes or subject areas they thought would have the amount of interaction facilitation they preferred. The class differences in ideals may therefore reflect the different expectations associated with each class.

> Instructors reporting less use of lecturing and more time spent on student discussion were described by students as showing more interaction facilitation. There was also a change in class standard deviations of Interaction Facilitation scores, with classes with higher student involvement tending to increase in standard deviation.

Instructors who described their courses as involving more discussion and participation of students in planning were described by students as showing more interaction facilitation. However, as described on p.111, McKeachie (1963) and Stern (1963) have suggested that students who require more formal structure may feel anxious in non-directive classrooms. The degree of student involvement in some classes may have received a mixed reception from the students, some liking the method and others not. Some students may have changed their ideals to include a requirement for more interaction facilitation, while others changed in the opposite direction. It should be noted that this explanation of the increase in standard deviations on the Interaction Facilitation dimension is in contradiction to the explanation of the increase of correlation between ideal and actual behavior (p.254). Both explanations must therefore be regarded with some caution pending further investigation.

Work Facilitation

> Students in different classes showed significant differences in the number of items considered relevant on the dimension of Work Facilitation in pretest but not in posttest descriptions of ideal instructor behavior.

Most of this change may have been due to one or two classes. There was no general trend in the data. One class in particular had a low mean number of items considered relevant on the pretest but increased its class mean by the posttest, thus reducing the differences between classes.

> Pretest Work Facilitation scores for ideal instructor behavior were significantly correlated with scores for actual instructor behavior on this dimension.

The reason for this result may be similar to that described for Interaction Facilitation (p. 256). Students may have been aware ahead of time how much Work Facilitation there would be in a class: They had certain expectations that may have influenced their ideals. They self-selected themselves into classes or subject areas they thought would have the amount of Work Facilitation they preferred--hence the correlation between pretest ideal descriptions and actual descriptions seven weeks later.

It is interesting that correlations between pretest ideal descriptions and actual behavior descriptions were shown for Interaction Facilitation and Work Facilitation but not for the other two dimensions, Consideration and Motivation. Perhaps there was less expectancy effect for these other dimensions.

> The Work Facilitation dimension scores for actual instructor behavior were very highly correlated with the course assessment scores.

Items on the Work Facilitation dimension were very similar to those on many currently used evaluation instruments. The course assessment score was similarly derived from items used on current evaluation instruments to give an overall evaluation of the course and the instructor. These variables were correlated at the .001 level for both student and class data. Course assessment was judged largely on the basis of work facilitation behavior.

Consideration

> The number of items considered relevant on the Consideration dimension of ideal instructor behavior increased from pretest to posttest as measured by class means, but not by student in a random sample of students from six classes. There was a tendency for instructors to be described as considerate if they allowed more student involvement and responsibility. There were significant differences between classes in satisfaction scores on the Consideration dimension.

This collection of findings has at least one plausible explanation. In classes where the instructor did not allow much student discussion and involvement, students felt that the instructor was inconsiderate. They decided that their ideal instructor should be more considerate, and that more items on the Consideration dimension were relevant; the comparison between posttest ideal and actual behavior descriptions then led to dissatisfaction on the Consideration dimension. The satisfaction scores on the Consideration dimension were the only ones that showed significant differences between classes.

Motivation

> There were no significant differences between classes or significant correlations between Motivation and other variables.

As was described on pp.169-170, the items originally assigned to the a priori dimension of Motivation were seen from the results of factor analysis to consist of three groups of items: participation items which loaded with Interaction Facilitation, interest items which loaded with Work Facilitation, and encouragement items which remained as a narrower meaning of motivation. Only these encouragement items were used to define Motivation--four items in all--and this dimension may have been less stable than the others.

Motivation and creating of interest occurs as a result of many kinds of instructor behavior: This conclusion is supported by the work of Atkinson (1958) and the discussion on pp. 113-119.

Assessment

> Students in different classes showed significant differences in course assessment scores. The course assessment scores were highly correlated with scores for actual instructor behavior on the Work Facilitation dimension. There was no correlation between assessment scores and student involvement as described by course structure variables.

Students in different classes described actual instructor behavior as significantly different on the Work Facilitation dimension. Course assessments also varied between classes, favorable assessment of instruction being highly correlated ($P < .001$) with Work Facilitation scores and not with the degree of student involvement as described by instructor responses to the Course Description Questionnaire. The course assessment items were measuring the same kind of behaviors that were described on the Work Facilitation dimension. This dimension is similar to Factor I of Isaacson et al. (1964) mentioned on p. 13: Global assessment items measure instructor-led classroom practices.

Satisfaction

> Students in different classes were significantly different in satisfaction scores only on the Consideration dimension.

Only on the Consideration dimension was there a difference between classes in satisfaction scores. As described above, there were significant correlations between pretest ideals and actual instructor behavior on Interaction Facilitation and Work Facilitation: Students knew what to expect. Students may have self-selected themselves according to their Interaction Facilitation and Work Facilitation ideals, so that the match between ideals and actual was high for most students. This selection was, however, not completely accurate--students showed a range of satisfaction scores from 0 to 100 on some dimensions. What this result shows is that inaccuracies of judgment were equally spread over the different classes.

> Satisfaction scores on the Interaction Facilitation and Consideration dimensions, and overall satisfaction scores, were significantly correlated with course structure variables describing student involvement. The overall satisfaction score was correlated with descriptions of actual instructor behavior on the dimensions of Interaction Facilitation and Consideration.

In this sample of students, a high satisfaction score on the Interaction Facilitation dimension was significantly associated with a more discussion-centered class and high student involvement. Satisfaction on the Consideration dimension was significantly associated with student involvement in Method of Presentation, Choice of Topics, Preparation of Material, Means of Assessment, and overall student-centered classroom practices.

Overall satisfaction scores were significantly associated with student involvement in Choice of Topics, Preparation of Material, overall student-centered classroom practices, and high scores on actual instructor behavior on the dimensions of Interaction Facilitation and Consideration.

Satisfaction scores were not significantly correlated with course assessment scores.

From the preceding sections, it is seen that the assessment scores and the satisfaction scores are measuring different things. The assessment scores measure instructor input into the course as described by the Work Facilitation items, whereas the satisfaction scores describe the extent to which student requirements for involvement and responsibility as expressed in Interaction Facilitation and

Consideration ideals are met by the instructor. These evaluations of instruction are different, and one or the other or both should be used according to the information required.

Conclusions

A new way of evaluating instruction has been devised. Satisfaction scores defined from the match between student descriptions of ideal and actual instructor behavior obtained from the IBDQ were not correlated with assessment scores found as the mean of six traditional items evaluating the instructor and the course. The assessment scores were seen to measure the same behaviors as the Work Facilitation items. Satisfaction scores on the dimensions of Interaction Facilitation and Consideration and the overall satisfaction score were correlated with the amount of student involvement and responsibility in the class. At this time, it is not known whether satisfaction scores are related to learning outcomes: Correlational studies of assessment scores and satisfaction scores with dependent variables describing cognitive and affective outcomes are needed.

The satisfaction scores derived from the IBDQ could not be directly judged for reliability. The reason is the use of the "irrelevant" category in the ideal instructor behavior descriptions. No procedure for estimating the reliabilities of these satisfaction scores has been found. Actual dimension scores had reliabilities from .80 to .89, and were significantly correlated with instructor descriptions of student involvement. The dimensions of behavior determined from the factor analysis of actual instructor behavior were found to be equally appropriate for the description of ideal behavior and the satisfaction scores were found to have sufficiently low intercorrelations to be considered as separate scales. The virtue of the present research is that the use of satisfaction scores has raised questions about the adequacy of traditional assessment scores, which are seen to be largely dependent on a narrow range of instructor behaviors. However, more work needs to be done on the reliability and validity of satisfaction scores.

In the two different populations investigated in the present research--undergraduates describing teaching associates and graduates describing faculty--very similar factor loadings were found and the same four dimensions of instructor behavior were identified. These dimensions had been identified from leadership literature, and this finding suggests that Interaction Facilitation, Work Facilitation, Consideration, and Motivation may be basic dimensions of behavior in a group setting. Instruments for describing ideal and actual behavior at different school levels, for elementary and secondary school and supervisory positions in education should be written to find if this suggestion holds true.

Student descriptions of ideal instructor behavior as measured by class mean dimension scores and class standard deviations on each dimension did not change significantly, although there were a few significant correlations between changes and course structure variables, there was a class change in number of items considered relevant on the Consideration dimension and using student data posttest ideals on two dimensions were more highly correlated with actual behavior than the pretest had been. The small amount of change observed may be due to the insensitivity of the instrument or may reflect stability of ideas : Students mostly know what to expect when they go to a certain class, their ideals have already been affected by these expectations, and so they do not change significantly during a seven week period of contact with an instructor.

From the data in this study, a theory of student expectations can be developed. It is suggested that students know what to expect in regard to the behaviors described on the Interaction Facilitation and Work Facilitation dimensions; this is supported by the high correlations between pretest ideal and actual descriptions of instructor behavior. These behaviors may be a reflection of the normative structure for different classes or subject areas as shown by the significant differences between classes obtained on some measures of Interaction Facilitation and Work Facilitation. Students self-select themselves into areas of their preference and students in different classes are equally good at this. Comparisons between student ideals and actual instructor behavior thus does not show a difference between classes on these two dimensions. Actual instructor behavior is different in different classes, but it is approximately what students want. These results are found for Interaction Facilitation and Work Facilitation because these dimensions are partly subject-dependent.

Consideration and Motivation, on the other hand, are subject-independent--they cannot be predicted ahead of time by the students. All students require a certain amount of consideration and motivation, so there is no difference between classes in ideal behavior on these dimensions. However, actual instructor behavior does vary in consideration and in motivation, leading to a significant difference in satisfaction scores on the Consideration dimension. (A class difference for Motivation satisfaction scores was not found, but this may have been because there were only four items on this scale.) To stand a higher chance of finding changes in ideals on the dimensions of Interaction Facilitation and Work Facilitation, it would be necessary to use classes where the instructor was going to teach in a way considered "unexpected" to the students for that subject area.

Recommendations for Further Study

The following recommendations are arranged under five headings: instrument development, comparison of ideals, use of dependent variables, changes in ideals, and experiments in student-instructor matching.

Instrument Development

The following recommendations come from the researcher's experience of scoring and interpreting data collected by means of the IBDQ.

1. The IBDQ should be shortened to include only the best loading items on the four factors (Fig. 9, p. 168). The "encouragement" subset of Motivation items should be built up to include more items.

2. The shortened form of the IBDQ could be used with other populations of students to find if the dimensions were stable.

3. All the items could be positively worded in order to make scoring simpler. On the basis of the factor loadings, only three items on the shortened form of the IBDQ would need to be changed.

4. The scale for describing ideal instructor behavior should be extended to six points to include "irrelevant" within the main scale rather than as a blank option. This would distinguish "irrelevant" responses from failure to respond.

5. The options for ideal behavior could be changed to the same frequency options used for actual behavior, plus the "irrelevant" response category. This would make the match between ideal and actual behavior descriptions more reliable.

6. The extreme options for actual behavior could be changed from Always and Never to Almost Always and Almost Never so that students would be more likely to use these options.

7. Test-retest reliabilities over a one-week period should be obtained for both ideal and actual description of instructor behavior. If responses

were found to be highly reliable, the computation of "matches" in defining satisfaction scores might be made on the basis of correspondence of ideal and actual descriptions.

8. A proposed instructor form of the IBDQ (the Instructor Opinion Questionnaire, IOQ) is given in Appendix O: This is for instructors to use in describing their own ideal and actual behavior. The items correspond to those used on the trial form of the IBDQ. This instrument could be shortened in the same way as the IBDQ and used to compare student and instructor perceptions of ideal and actual behavior.

Comparison of Ideals

The present research used non-random samples of undergraduate psychology students, and graduate students from 12 selected classes. Further work is needed with random samples of students, and populations at other levels.

1. In the present study, where classes were not selected from the six subject areas at random, it was not legitimate to consider differences between subject areas. However, use of larger, random, samples of graduate classes from different areas could allow such comparisons.

2. The factor structure for actual instructor behavior, and the distribution of descriptions of ideal instructor behavior, should be compared across different levels and institutions. For example, classes from freshman year to graduate school within a particular subject area could be tested.

3. More than one class per instructor should be included in some samples in order to compare the

ideals of different students and to see how instructor behavior varies across classes.

4. By surveying the same students in different classes, some idea could be obtained of how expectations for different classes influence ideals.

5. Another possibility for investigating the influence of expectations is to collect descriptions of both ideals and expectations at the beginning of the quarter. The IBDQ could easily be adapted for this purpose.

6. The collection of student and teacher descriptions of ideal and actual teacher behavior should also be extended to elementary and secondary schools. Trial forms of instruments to be used at these levels have been developed by rewording the items used in the IBDQ and IOQ. For the elementary level these are given in Appendices P and Q, and for the secondary level in Appendices R and S.

7. Modification of the IBDQ and IOQ could also be used at the administrative and supervisor level. A proposed Supervisor Behavior Description Questionnaire for use with departmental chairmen, supervisors, principals, etc. is given in Appendix T, and the corresponding Supervisor Opinion Questionnaire in Appendix U.

8. In Chapter II, student differences in descriptions of ideal instructor behavior were hypothesized to be related to personality differences (for example, need for dependence, for affiliation, for power, and for achievement). Only need for dependence was measured in this study. Further studies should include other personality variables.

Use of Dependent Variables

Assessment scores were not significantly correlated with satisfaction scores derived from the IBDQ. Correlations of these scores with student learning outcomes should be investigated.

1. As assessment scores are related to the work facilitation behavior of the instructor, they could be expected to correlate positively with end-of-quarter grades and other measures of cognitive learning. This hypothesis should be tested.

2. As satisfaction scores are related to the amount of student involvement and responsibility that the instructor allows in his class, they could be expected to correlate positively with affective gains, including growth of self confidence and change in attitudes, and poorly or not at all with cognitive gains. This hypothesis should be tested.

Changes in Ideals

Although the basic conclusion from this research has been that student ideals are fairly stable over a seven week period, there is some conflicting evidence. There is also a paucity of research in this area.

1. Dimension scores, number of items considered relevant, and changes in class standard deviations of dimension scores, all seem useful statistics for describing changes in ideals. They should continue to be used.

2. It was found that student pretest ideals on Interaction Facilitation and Work Facilitation were correlated with actual instructor behavior--students to a large extent knew what to expect. Experimental classes where instructors say they are going to try unusual approaches should be sought out and any changes in student ideals monitored.

3. It might also be possible to collect longitudinal data on some students to find how their ideals changed during (for example) a two year period in a preservice teacher education program.

4. Another investigation would be to compare changes in ideals in classes where group dynamics, dimensions of teacher behavior, and other aspects of leadership are discussed, with changes in control classes.

5. The effect on an instructor's behavior of knowing his students' ideals could be studied by comparing groups receiving different amounts of feedback. This is similar to Gage et al.'s work (1960) at the school level.

Experiments in Student-Instructor Matching

It is not known whether a student has higher cognitive or affective gains if the actual instructor behavior matches his ideal. Research needs to be done in this area.

1. Where several sections of the same undergraduate course are taught by teaching associates, it would be possible to match students to instructors. A random half of the students could be matched to the instructors while the other half were assigned to instructors at random. At the end

of the course, assessment scores and satisfaction scores of the two halves could be compared and related to cognitive and affective gains.

2. Alternatively, a random half of the teaching associates might be persuaded to change their teaching behavior to conform more closely to their students' ideals. Again, course assessment scores, satisfaction scores, and cognitive and affective gains of the two groups could be compared.

3. In either of the above two experiments, multiple linear regression equations could be obtained to find which scores contributed most to which student gains, and this information could be used on subsequent occasions.

4. Data from the present study showed that pretest ideals on Interaction Facilitation showed the greatest differences between classes. It might be useful to use an instrument concerned solely with the amount of student participation and structuring preferred in order to match students to instructors. This would assume that the instructors were of similar basic competence in subject matter knowledge.

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APPENDIX A

INSTRUCTOR BEHAVIOR DESCRIPTION QUESTIONNAIRE (IBDQ) TRIAL FORM

Instructor Description Questionnaire

HOW WOULD YOU LIKE YOUR INSTRUCTOR TO BEHAVE?

Below are some items that could be used to describe the behavior of an instructor.

On the answer sheet please fill in your instructor's name, course name and number (and section if applicable), your department (and major if applicable), and your sex.

How important do you think each of the following behaviors is in describing an ideal instructor for this course ?

Use a pencil to respond to each item by blackening in a space on the answer sheet. Please use the code below.

Behavior which:

A = is essential for an ideal instructor for this course
B = is important but not essential
C = is somewhat important
D = should be avoided if possible
E = should always be avoided

If you do not blacken a space on the answer sheet for a particular item this is interpreted as " irrelevant behavior that doesn't make any difference one way or the other".

If you do not understand an item please draw a line through the responses to that item on the answer sheet.

An instructor should

1. Make derogatory remarks about some students to the others.
2. Adapt class sessions to our difficulties and interests.
3. Show me that the topics being discussed are important.
4. Make clear his role in the class.
5. Expect me to take notes when he talks.
6. Ask us what topics we would like to cover.
7. Encourage me to spend extra time and effort on my work.
8. Inspire my confidence in his knowledge of the subject.

9. Be friendly and approachable.
10. Make exceptions for himself that he doesn't allow me to make.
11. Encourage me to contribute my knowledge and experience.
12. Criticize me in a destructive way.
13. Arrange the room so students can discuss together.
14. Emphasize seeing beyond the limits of the course.
15. Use effective teaching methods for this course.
16. Hesitate about taking a leadership role in the class.

17. Motivate me to do my best work.
18. Show favoritism to some students.
19. Make the work interesting for me.
20. Call me by my name.
21. Supplement the text from other sources (other texts, visual aids, etc).
22. Be willing to learn with us.
23. Indicate where relevant information not dealt with in class can be found.
24. Encourage us to help each other outside of class hours.

A = is essential for an ideal instructor for this course
B = is important but not essential
C = is somewhat important
D = should be avoided if possible
E = should always be avoided

If you do not blacken a space on the answer sheet for a particular item this is interpreted as "irrelevant behavior that doesn't make any difference one way or the other".

If you do not understand an item please draw a line through the responses to that item on the answer sheet.

An instructor should

25. Be willing to listen to suggestions I might make.
26. Let me know what he expects of me.
27. Provide me with informational feedback and encourage greater effort.
28. Encourage me to show initiative.
29. Praise some students to the others.
30. Settle conflicts if they arise in class.
31. Express appreciation when I do good work.
32. Plan course objectives jointly with students.

33. Organize effective discussion groups.
34. Set aside class time for inter-student discussions.
35. Be fair in grading my work.
36. Schedule the work so things get done at the right times.
37. Show enthusiasm for the subject.
38. Show us he is well organized.
39. Be able to answer my questions.
40. Make sure some students are not jealous of others.

41. Explain how the topics being discussed relate to the objectives of the course.
42. Let us work on projects and assignments together.
43. Be reluctant to change the course objectives.
44. Be considerate of my personal feelings.
45. Trust me.
46. Make me feel free to ask questions.
47. Want students to get along together.
48. Change the assignments without consulting the class.

49. Have adequate office hours for consultation and assistance.
50. Link course material to laboratory, clinical or field experiences.
51. Avoid individual contact with students.
52. Make it pleasant for me to be in class.
53. Present material so I can understand it.
54. Help me with my personal problems.

Instructor Description Questionnaire

HOW DOES YOUR INSTRUCTOR BEHAVE?

Please note: Your responses will not be used in anyway to evaluate you. Your Instructor or other person would only receive a summary of the responses of the whole class.

Below are some items that could be used to describe the behavior of an instructor.

On the answer sheet please fill in your instructor's name, course name and number (and section if applicable), your department (and major if applicable), and your sex.

How frequently does the instructor in this course act in the ways described below?

Use a pencil to respond to each item by blackening in a space on the answer sheet. Please use the code below.

A = Always
B = Often
C = Sometimes
D = Seldom
E = Never

If you do not understand an item please draw a line through the responses to that item on the answer sheet.

This instructor

55. Makes derogatory remarks about some students to the others.
56. Adapts class sessions to our difficulties and interests.

57. Shows me that the topics being discussed are important.
58. Makes clear his role in the class.
59. Expects me to take notes when he talks.
60. Asks us what topics we would like to cover.
61. Encourages me to spend extra time and effort on my work.
62. Inspires my confidence in his knowledge of the subject.
63. Is friendly and approachable.
64. Makes exceptions for himself that he doesn't allow me to make.

65. Encourages me to contribute my knowledge and experience.
66. Criticizes me in a destructive way.
67. Arranges the room so students can discuss together.
68. Emphasizes seeing beyond the limits of the course.
69. Uses effective teaching methods for this course.
70. Hesitates about taking a leadership role in the class.
71. Motivates me to do my best work.
72. Shows favoritism to some students.

A = Always
B = Often
C = Sometimes
D = Seldom
E = Never

If you do not understand an item please draw a line through the responses to that item on the answer sheet.

This instructor

73. Makes the work interesting for me.
74. Calls me by my name.
75. Supplements the text from other sources(other texts, visual aids, etc).
76. Is willing to learn with us.
77. Indicates where relevant information not dealt with in class can be found.
78. Encourages us to help each other outside of class hours.
79. Is willing to listen to suggestions I might make.
80. Lets me know what he expects of me.

81. Provides me with informational feedback and encourages greater effort.
82. Encourages me to show initiative.
83. Praises some students to the others.
84. Settles conflicts if they arise in class.
85. Expresses appreciation when I do good work.
86. Plans course objectives jointly with students.
87. Organizes effective discussion groups.
88. Sets aside class time for inter-student discussions.

89. Is fair in grading my work.
90. Schedules the work so things get done at the right times.
91. Shows enthusiasm for the subject.
92. Shows us he is well organized.
93. Is able to answer my questions.
94. Makes sure some students are not jealous of others.
95. Explains how the topics being discussed relate to the objectives of the course.
96. Lets us work on projects and assignments together.

97. Is reluctant to change the course objectives.
98. Is considerate of my personal feelings.
99. Trusts me.
100. Makes me feel free to ask questions.
101. Wants students to get along together.
102. Changes the assignments without consulting the class.
103. Has adequate office hours for consultation and assistance.
104. Links course material to laboratory, clinical or field experiences.

105. Avoids individual contacts with students.
106. Makes it pleasant for me to be in class.
107. Presents material so I can understand it.
108. Helps me with my personal problems.

COMPARED TO OTHER INSTRUCTORS I HAVE HAD

Please blacken in spaces on the answer sheet as before. Respond to the following items using the code:

A = Among the very best
B = Among the good ones
C = Average
D = Among the poor ones
E = Among the very worst

Compared to other instructors I have had

109. this instructor in general is ____.
110. this instructor shows kindness, consideration and friendliness.
111. this instructor arranges the class so students get to like each other and work together.
112. this instructor motivates me to do my best work.
113. this instructor is organized, knows his subject and can put it over.

SATISFACTION WITH THIS INSTRUCTOR AND COURSE

Please blacken in spaces on the answer sheet as before. Respond to the following items using the code:

A = Certainly yes
B = Probably yes
C = Uncertain
D = Probably no
E = Certainly no

114. Overall I would recommend this instructor to a friend.
115. This course covered the material I wanted to learn about.
116. I would like to take another course with this instructor.
117. I learned more from this instructor than I would have on my own.
118. I found this course worthwhile.
119. This course covered what the instructor said it would.

Thankyou for your cooperation.

APPENDIX B

FACTOR ANALYSIS OF TRIAL FORM OF IBDQ: ROTATED FACTOR LOADINGS, EIGENVALUES, AND PERCENTAGE VARIANCES

APPENDIX B

FACTOR ANALYSIS OF TRIAL FORM OF IBDQ: ROTATED FACTOR LOADINGS, EIGENVALUES, AND PERCENTAGE VARIANCES[a]

Item[b]	Factor I	Factor II	Factor III	Factor IV
1	-.15	.18	-.55	.09
2	.29	.38	.17	.24
3	.52	.13	.18	.22
4	.35	.03	.07	.38
5	.12	-.07	-.06	.19
6	.09	.62	-.05	-.01
7	.20	.19	-.10	.58
8	.66	.10	.17	.34
9	.04	.14	.47	.36
10	-.27	.02	-.49	.09
11	.17	.39	.16	.37
12	-.08	.25	-.33	-.02
13	.08	.57	-.15	.19
14	.24	.41	.09	.33
15	.61	.10	.23	.31
17	.47	.19	.12	.62
19	.58	.19	.16	.48
20	.01	.35	.09	.22
22	.24	.46	.26	.25
23	.18	.36	-.03	.21
24	.11	.42	-.14	.40
25	.10	.35	.37	.32
26	.29	.11	.13	.54
27	.41	.23	.12	.60
28	.33	.30	.10	.64
29	-.08	.27	-.34	.16
31	.10	.34	.13	.47
32	.10	.59	-.02	.14
33	.07	.66	-.03	.14
34	.05	.53	.03	.03
35	.23	-.19	.40	.21

APPENDIX B (continued)

Item[b]	Factor I	Factor II	Factor III	Factor IV
36	.46	-.10	.23	.03
37	.64	.05	.18	.21
38	.77	.08	.17	.05
39	.64	.04	.11	.12
40	-.02	.31	.12	.26
41	.42	.33	.02	.26
43	.11	-.30	-.17	.06
44	.08	.19	.37	.36
46	.21	.16	.41	.24
47	.09	.36	.27	.06
48	-.19	-.11	-.46	.03
49	.28	.13	.31	.25
50	.24	.33	.27	.06
51	-.03	-.14	-.51	-.01
52	.34	.28	.40	.39
53	.35	-.05	.48	.16
54	-.09	.30	-.06	.31
55	.60	.24	.31	.28
56	.16	.22	.55	.18
57	.12	.35	.18	.35
58	.46	.21	.10	.54
59	.81	.15	.20	.09
Eigen-value	12.81	3.69	1.97	1.27
Percentage Variance	24.17	6.95	3.72	2.40

[a] Items 16, 18, 21, 30, 42, and 45 omitted before analysis.

[b] Item numbers refer to the instrument in Appendix A.

APPENDIX C

CORRESPONDENCE OF ITEMS ON TRIAL AND FINAL FORMS OF THE IBDQ

APPENDIX C

CORRESPONDENCE OF ITEMS ON TRIAL AND FINAL FORMS OF THE IBDQ

Trial Form	Final Form	Trial Form	Final Form	Trial Form	Final Form
1	39	21	Omitted	41	37
2	13	22	10	42	Omitted
3	23	23	7	43	38
4	5	24	30	44	47
5	6	25	3	45	Omitted
6	16	26	43	46	1
7	34	27	11	47	36
8	8	28	44	48	29
9	28	29	24	49	22
10	21	30	Omitted	50	25[a]
11	12	31	14	51	19[b]
12	10	32	31	52	45
13	48	33	33	53	35
14	46	34	18	54	32
15	27	35	17		
16	Omitted	36	26		
17	9	37	20		
18	Omitted	38	40		
19	41	39	15		
20	2	40	42		

[a] Item rewritten.

[b] Item changed from negative to positive form.

APPENDIX D

IBDQ FINAL FORM, PRETEST

Instructor Behavior Decription Questionnaire

HOW WOULD YOU LIKE YOUR INSTRUCTOR TO BEHAVE?

Below are some items that could be used to describe the behavior of an instructor.

How important do you think each of these behaviors is in describing an ideal instructor for this course?

Use a pencil to respond to each item by blackening in a space on the answer sheet. Please use the following code :-

Behavior which: A = is essential for an ideal instructor for this course
B = is very important
C = is fairly important
D = is undesirable
E = should always be avoided

Note If you think that the behavior described in a particular item is not important or is irrelevant then leave the corresponding space blank on the answer sheet.

An instructor should

1. Make me feel free to ask questions.
2. Call me by my name.
3. Be willing to listen to suggestions I might make.
4. Be willing to learn with us.
5. Make clear his role in the class.
6. Expect me to take notes when he talks.
7. Indicate where relevant information not dealt with in class can be found.
8. Inspire my confidence in his knowledge of the subject.

9. Motivate me to do my best work.
10. Criticize me in a destructive way.
11. Provide me with informational feedback and encourage greater effort.
12. Encourage me to contribute my knowledge and experience.
13. Adapt class sessions to our difficulties and interests.
14. Express appreciation when I do good work.
15. Be able to answer my questions.
16. Ask us what topics we would like to cover.

17. Be fair in grading my work.
18. Set aside class time for inter-student discussions.
19. Welcome individual contact with students.
20. Show enthusiasm for the subject.
21. Do things himself that he doesn't allow me to do.
22. Have adequate office hours for consultation and assistance.
23. Show me that the topics being discussed are important.
24. Praise some students in front of the others.

Behavior which : A = is essential for an ideal instructor for
this course
B = is very important
C = is fairly important
D = is undesirable
E = should always be avoided
blank = is not important or is irrelevant

An instructor should

25. Show me how the course material relates to everyday life.
26. Schedule the work so things get done at the right times.
27. Use effective teaching methods for this course.
28. Be friendly and approachable.
29. Change the assignments without consulting the class.
30. Encourage us to help each other outside of class hours.
31. Plan course objectives jointly with students.
32. Help me with my personal problems.

33. Organize effective discussion groups.
34. Encourage me to spend extra time and effort on my work.
35. Present material so I can understand it.
36. Want students to get along together.
37. Explain how the topics being discussed relate to the objectives of the course.
38. Be reluctant to change the course objectives.
39. Make derogatory remarks about some students in front of the others.
40. Show us he is well organized.

41. Make the work interesting for me.
42. Make sure some students are not jealous of others.
43. Let me know what he expects of me.
44. Encourage me to show initiative.
45. Make it pleasant for me to be in class.
46. Emphasize seeing beyond the limits of the course.
47. Be considerate of my personal feelings.
48. Arrange the room so students can discuss together.

NEED FOR DEPENDENCE

Please blacken in spaces on the answer sheet as before. Respond to the following items using the code :-

A = Not at all
B = A little
C = Somewhat
D = Quite a bit
E = Very difficult or very much

49. How difficult do you find it to disagree with others?
50. When you have a problem how much do you like to think it through yourself without help from others?
51. How much do you dislike being told to do something that is contrary to your wishes?
52. If you have come to a conclusion about something, how difficult is it for someone else to change your mind?
53. How much do you usually want the person who is in charge of a group you are in to tell you what to do?
54. How difficult do you find it to carry out other people's suggestions without changing them any?

BIOGRAPHICAL DATA

Please blacken in spaces on the answer sheet as before according to the codes given :-

55. My class rank is A = first year graduate student, B = 2nd year, C = 3rd year, D = 4th year, E = 5th year and above

56. My sex is A = Male, B = Female

57. How much freedom did you have in choosing this course?
    A = Freely elected (including 'audit')
    B = Recommended by Department or Faculty
    C = Elected from a required area
    D = Proquisite to required courses
    E = Required in program of studies

If none apply then please describe

58. How many previous courses have you had with this instructor?
A = 0, B = 1, C = 2, D = 3, E = 4 and above
59. What is your age group? A = 21 - 23, B = 24 - 26, C = 27 - 29, D = 30 - 32, E = 33 and above

APPENDIX E

IBDQ FINAL FORM, POSTTEST

Instructor Behavior Decription Questionnaire

HOW WOULD YOU LIKE YOUR INSTRUCTOR TO BEHAVE?

Below are some items that could be used to describe the behavior of an instructor.

How important do you think each of these behaviors is in describing an ideal instructor for this course?

Use a pencil to respond to each item by blackening in a space on the answer sheet. Please use the following code :-

Behavior which: A = is essential for an ideal instructor for this course
B = is very important
C = is fairly important
D = is undesirable
E = should always be avoided

Note If you think that the behavior described in a particular item is not important or is irrelevant then leave the corresponding space blank on the answer sheet.

An instructor should

1. Make me feel free to ask questions.
2. Call me by my name.
3. Be willing to listen to suggestions I might make.
4. Be willing to learn with us.
5. Make clear his role in the class.
6. Expect me to take notes when he talks.
7. Indicate where relevant information not dealt with in class can be found.
8. Inspire my confidence in his knowledge of the subject.

9. Motivate me to do my best work.
10. Criticize me in a destructive way.
11. Provide me with informational feedback and encourage greater effort
12. Encourage me to contribute my knowledge and experience.
13. Adapt class sessions to our difficulties and interests.
14. Express appreciation when I do good work.
15. Be able to answer my questions.
16. Ask us what topics we would like to cover.

17. Be fair in grading my work.
18. Set aside class time for inter-student discussions.
19. Welcome individual contact with students.
20. Show enthusiasm for the subject.
21. Do things himself that he doesn't allow me to do.
22. Have adequate office hours for consultation and assistance.
23. Show me that the topics being discussed are important.
24. Praise some students in front of the others.

Behavior which : A = is essential for an ideal instructor for this course
B = is very important
C = is fairly important
D = is undesirable
E = should always be avoided
blank = is not important or is irrelevant

An instructor should

25. Show me how the course material relates to everyday life.
26. Schedule the work so things get done at the right times.
27. Use effective teaching methods for this course.
28. Be friendly and approachable.
29. Change the assignments without consulting the class.
30. Encourage us to help each other outside of class hours.
31. Plan course objectives jointly with students.
32. Help me with my personal problems.

33. Organize effective discussion groups.
34. Encourage me to spend extra time and effort on my work.
35. Present material so I can understand it.
36. Want students to get along together.
37. Explain how the topics being discussed relate to the objectives of the course.
38. Be reluctant to change the course objectives.
39. Make derogatory remarks about some students in front of the others.
40. Show us he is well organized.

41. Make the work interesting for me.
42. Make sure some students are not jealous of others.
43. Let me know what he expects of me.
44. Encourage me to show initiative.
45. Make it pleasant for me to be in class.
46. Emphasize seeing beyond the limits of the course.
47. Be considerate of my personal feelings.
48. Arrange the room so students can discuss together.

HOW DOES YOUR INSTRUCTOR BEHAVE ?

Please note : Your responses will not be used in anyway to evaluate you. Your instructor would only receive a summary of the responses of the whole class.

Below are some items that could be used to describe the behavior of an instructor.

How frequently do you think the instructor in this course acts in the ways described below?

Use a pencil to respond to each item by blackening in a space on the answer sheet. Please use the following code :

A = Always
B = Often
C = Sometimes
D = Seldom
E = Never

This instructor

49. Makes me feel free to ask questions.
50. Calls me by my name.
51. Is willing to listen to suggestions I might make.
52. Is willing to learn with us.
53. Makes clear his role in the class.
54. Expects me to take notes when he talks.
55. Indicates where relevant information not dealt with in class can be found.
56. Inspires my confidence in his knowledge of the subject.

57. Motivates me to do my best work.
58. Criticizes me in a destructive way.
59. Provides me with informational feedback and encourages greater effort.
60. Encourages me to contribute my knowledge and experience.
61. Adapts class sessions to our difficulties and interests.
62. Expresses appreciation when I do good work.
63. Is able to answer my questions.
64. Asks us what topics we would like to cover.

65. Is fair in grading my work.
66. Sets aside class time for inter-student discussions.
67. Welcomes individual contacts with students.
68. Shows enthusiasm for the subject.
69. Does things himself that he doesn't allow me to do.
70. Has adequate office hours for consultation and assistance.
71. Shows me that the topics being discussed are important.
72. Praises some students in front of the others.

A = Always
B = Often
C = Sometimes
D = Seldom
E = Never

This instructor

73. Shows me how the course material related to everyday life.
74. Schedules the work so things get done at the right times.
75. Uses effective teaching methods for this course.
76. Is friendly and approachable.
77. Changes the assignments without consulting the class.
78. Encourages us to help each other outside of class hours.
79. Plans course objectives jointly with students.
80. Helps me with my personal problems.

81. Organizes effective discussion groups.
82. Encourages me to spend extra time and effort on my work.
83. Presents material so I can understand it.
84. Wants students to get along together.
85. Explains how the topics being discussed relate to the objectives of the course.
86. Is reluctant to change the course objectives.
87. Makes derogatory remarks about some students in front of the others.
88. Shows us he is well organized.

89. Makes the work interesting for me.
90. Makes sure some students are not jealous of others.
91. Lets me know what he expects of me.
92. Encourages me to show initiative.
93. Makes it pleasant for me to be in class.
94. Emphasizes seeing beyond the limits of the course.
95. Is considerate of my personal feelings.
96. Arranges the room so students can discuss together.

SATISFACTION WITH THE COURSE

Please blacken in spaces on the answer sheet as before. Respond to the following items using the code :

A = Strongly agree
B = Agree
C = Uncertain
D = Disagree
E = Strongly disagree

97. I found this course worthwhile.
98. As a result of this course I want to fine out more about this subject.
99. I learned more from this instructor than I would have on my own.
100. Overall I would recommend this instructor to a friend.
101. This instructor covered the material in a way that seemed appropriate.
102. I am more interested in this subject now than I was at the beginning of the quarter.

APPENDIX F

INSTRUCTIONS TO BE READ ON THE PRETEST ADMINISTRATION

APPENDIX F

INSTRUCTIONS TO BE READ ON THE PRETEST ADMINISTRATION

(First give out the questionnaires with IBM answer sheets.)

I am a graduate student in Science Education. This class is one of 12 in my sample. I am collecting graduate student opinions on how they would like their instructors to behave--what they think is an ideal instructor for a particular course.

I will be returning in 7 weeks time to collect your responses on how this course has been organized--your description of how the instructor does behave.

As I need to compare the two sets of responses, please write your name (or other identification) on the IBM answer sheet. Your responses are completely confidential but your instructor may request an overall summary of the results.

Now looking at the questionnaire; the first part is for describing an ideal instructor for this course. The code is on an "importance scale." If you consider an item to be irrelevant or not applicable to the description of an ideal instructor, then leave the corresponding item space blank on the answer sheet. For example, if you thought that item 24

APPENDIX F (continued)

was irrelevant for the description of an ideal instructor, you would not make any mark for item 24 on the answer sheet. The second part of the instrument is to collect information about individual students. Thank you for your cooperation.

Please don't forget your name or other identification.

APPENDIX G

INSTRUCTIONS TO BE READ ON THE POSTTEST ADMINISTRATION

APPENDIX G

INSTRUCTIONS TO BE READ ON THE POSTTEST ADMINISTRATION

At the beginning of the quarter, I distributed a questionnaire to collect your description of ideal instructor behavior. The questionnaire I have now is for collecting descriptions of actual instructor behavior and I would also like to collect your opinion of ideal instructor behavior at this time.

(Give out questionnaires with IBM answer sheets.)

Looking at the questionnaire; the code for items 1 - 48 (ideal behavior) is as before. The code is on an "importance scale." If you consider an item to be irrelevant or not applicable to the description of an ideal instructor, then leave the corresponding item space blank on the answer sheet. Items 49 - 96 (actual behavior) are coded on a frequency scale for describing how often you think the instructor in this course acts in the way described. Items 97-102 are for you to use to describe your satisfaction with the course. Thank you very much for your cooperation.

Please use the same ID code as at the beginning of the quarter--your name or the number you used. I have a list

APPENDIX G (continued)

here of codes used in this class if you need to see it. If you were not here at the beginning of the quarter, please complete the questionnaire anyway.

APPENDIX H

COURSE DESCRIPTION QUESTIONNAIRE

How do you expect to organize this course ?

This information is confidential; it will help me to interpret student responses to the questionnaire. You will have an opportunity later in the quarter to change any responses you make. At the present time just indicate how you think the course will be organized.

Please check which alternative in each set most nearly describes how you expect to organize this course. The alternatives within each set are meant to be mutually exclusive, i.e. check only one alternative. If no alternative seems appropriate then please describe your situation in the space provided. Thankyou.

1. What is the intended method of presentation ?
___ a) Mainly lecture.
___ b) Mainly laboratory.
___ c) About half and half lecture/laboratory.
___ d) Mainly lecturer-led discussion.
___ e) About half and half lecture/discussion.
___ f) Mainly small group work.
___ g) Mainly individualized.
other ___

2. How much student involvement will there be in choice of topics discussed ?
___ a) Almost no student involvement; choice of topics decided from outside.
___ b) Almost no student involvement; topics chosen by instructor.
___ c) Some student involvement in choice of topics.
___ d) Considerable student involvement in choice of topics.
___ e) Students will decide on what topics will be discussed.
other ___

3. Who will prepare classroom presentations ?
___ a) All necessary class material will be prepared by instructor.
___ b) Most material prepared by instructor; students will have little outside work to do.
___ c) Small amount of material prepared by instructor; students will have a lot of outside work to do.
___ d) Small amount of material prepared by instructor; students will have a little outside work to do.
___ e) Students prepare majority of learning material.
other ___

4. How much prior information will there be ?
___ a) Detailed outline of course topics will be given by instructor at beginning of the quarter.
___ b) Overview of course topics will be given by instructor.
___ c) Brief outline of course topics will be given by instructor.
___ d) No outline will be given; topics known to instructor.
___ e) No outline will be given; topics arise during process of instructor/student interaction.
other ___

5. What will be the means of assessment ?
___ a) Mid term and final exam(s) - mostly multiple choice.
___ b) Mid term and final exam(s) - mostly essay.
___ c) Paper(s) on prescribed topic(s).
___ d) Paper(s) on chosen topic(s) in specified area.
___ e) Paper(s) on chosen topic(s) (almost no restriction).
___ f) Both exam(s) and paper(s).
___ g) No written exams or papers.
other ___

6. What feedback do you intend to give on written work ?
___ a) Does not apply; no written work required.
___ b) Exam(s) or paper(s) not returned.
___ c) Exam(s) or paper(s) returned with grade or mark only.
___ d) Exam(s) or paper(s) returned with brief comments.
___ e) Exam(s) or paper(s) returned with extensive comments.
___ f) Exam(s) or paper(s) returned and individual conferences will be arranged.
___ g) Any c) through f) and classtime spent going over exam(s).
___ h) Any c) through f) and c;asstime spent on presentations of paper(s).
other ___

7. What course evaluation do you plan ?
___ a) No course evaluation is planned.
___ b) Informal evaluation (discussion of whether objectives have been achieved).
___ c) Formal evaluation using University or College form.
___ d) Formal evaluation using Department or Faculty form.
___ e) Formal evaluation using personally developed form.
___ f) Formal and informal evaluation.
other ___

Please add here any special details about the course that you feel are important:

APPENDIX I

SCORING SYSTEM FOR COURSE DESCRIPTION QUESTIONNAIRE

APPENDIX I

SCORING SYSTEM FOR COURSE DESCRIPTION QUESTIONNAIRE

1. What is the intended method of presentation?

   1 = Mainly lecture
   2 = Mainly lecturer-led discussion
   3 = About half and half lecture/discussion
   4 = Mainly small group work
   5 = Mainly individualized

2. How much student involvement will there be in choice of topics discussed?

   1 = Almost no student involvement; choice of topics decided from outside
   2 = Almost no student involvement; topics chosen by instructor
   3 = Some student involvement in choice of topics
   4 = Considerable student involvement in choice of topics
   5 = Students will decide on what topics will be discussed

3. Who will prepare classroom presentations?

   1 = All necessary class material will be prepared by the instructor
   2 = Most material prepared by instructor; students will have little outside work to do
   3 = Small amount of material prepared by instructor; students will have a lot of outside work to do
   4 = Small amount of material prepared by instructor; students will have a little outside work to do
   5 = Students prepare majority of learning material

4. How much prior information will there be?

   1 = Detailed outline of course topics will be given by instructor at beginning of the quarter
   2 = Overview of course topics will be given by instructor

APPENDIX I (continued)

3 = Brief outline of course topics will be given by instructor
4 = No outline will be given; topics known to instructor
5 = No outline will be given; topics arise during process of instructor-student interaction

5. What will be the means of assessment?

1 = Examinations or quizzes
2 = Problems
3 = Examinations and paper(s)
4 = Paper(s) on chosen topic(s) in specified area
5 = Paper(s) on chosen topic(s) (almost no restriction)
6 = No written exams or papers

6. What feedback do you intend to give on written work?

1 = None (because no written work required)
2 = Exam(s) or paper(s) returned with brief comments
3 = Exam(s) or paper(s) returned with extensive comments
4 = Exam(s) or paper(s) returned and individual conferences will be arranged
5 = Any of the above and classtime spent going over exam(s)

7. What course evaluation do you plan?

1 = No course evaluation is planned
2 = Formal evaluation using University or College form
3 = Formal evaluation using Department or Faculty form
4 = Formal evaluation using personally developed form
5 = Informal evaluation (discussion of whether objectives have been achieved)
6 = Formal and informal evaluation

APPENDIX J

FACTOR ANALYSIS OF FINAL FORM OF IBDQ: ROTATED FACTOR LOADINGS, EIGENVALUES, AND PERCENTAGE VARIANCES

APPENDIX J

FACTOR ANALYSIS OF FINAL FORM OF IBDQ: ROTATED FACTOR LOADINGS, EIGENVALUES, AND PERCENTAGE VARIANCES

Item No.[a]	Factor I Interaction Facilitation (IF)	Factor II Work Facilitation (WF)	Factor III Consideration (C)	Factor IV Motivation (M)
1	.19	-.05	.59	.20
2	.09	-.15	.08	.72
3	.28	.15	.39	.50
4	.14	.26	.35	.21
5	.11	.56	-.08	.08
6	.06	.02	-.20	-.08
7	.03	.21	.32	.26
8	.04	.50	.14	-.01
9	.10	.43	-.08	.61
10	-.11	.06	-.50	.09
11	.16	.32	-.02	.56
12	.47	.27	.15	.44
13	.42	.32	.10	.18
14	.46	.16	.19	.45
15	-.10	.30	.15	.09
16	.49	.15	.18	.22
17	-.21	-.03	.20	.42
18	.73	-.13	.11	.12
19	.11	.07	.60	.26
20	.08	.60	.10	.03
21	-.26	-.12	-.42	.20
21	-.16	.22	.21	.33
23	.28	.58	-.02	.02
24	.36	.07	-.34	.10
25	.61	.30	-.14	.00
26	.00	.45	-.12	.18
27	.18	.65	.01	.03
28	-.05	.17	.57	.15
29	.01	-.29	-.25	.26
30	.24	-.17	-.01	.35

APPENDIX J (continued)

Item No.[a]	Factor I Interaction Facilitation (IF)	Factor II Work Facilitation (WF)	Factor III Consideration (C)	Factor IV Motivation (M)
31	.48	.12	.22	.10
32	.20	-.19	-.20	.30
33	.82	.12	.07	.07
34	.22	.20	-.04	.56
35	.13	.66	.16	-.05
36	.50	.29	-.02	.05
37	.33	.38	.07	.31
38	-.26	-.10	-.25	.05
39	-.13	.03	-.55	.19
40	.07	.64	-.05	.11
41	.17	.73	.03	-.04
42	.36	-.08	-.28	.36
43	.16	.43	.10	.41
44	.29	.35	.15	.55
45	.13	.62	.25	.19
46	.39	.53	.10	.11
47	.33	.25	.10	.40
48	.70	.14	.13	.14
Eigenvalue	9.62	3.26	2.64	2.40
Percentage Variance	20.05	6.79	5.51	5.00

[a] Item numbers refer to the instrument in Appendix E.

APPENDIX K

ALPHAMERIC CHARACTER TRANSFORMATION PROGRAM

```
C            ALPHAMERIC CHARACTER TRANSFORMATION PROGRAM (A.C.T.)
C
C                    PREPARED BY MICHAEL C. MITCHELMORE,
C                      COLLEGE OF EDUCATION, JUNE 1973
C
C     THIS PROGRAM TRANSFORMS ANY ALPHAMERIC CHARACTER (LETTER OR
C     NUMERAL) INTO ANY OTHER ALPHAMERIC CHARACTER.  THE NEW CHARACTER
C     IS PUNCHED IN THE SAME CARD POSITION AS THE OLD ONE.  TWO
C     TRANSFORMATIONS ARE STANDARD:
C
C     TRANS 0 CHANGES ALL CHARACTERS TO BLANKS,
C     TRANS 1 LEAVES ALL CHARACTERS UNCHANGED.
C
C     UP TO 8 FURTHER COMBINATIONS OF CHARACTER TRANSFORMATIONS MAY BE
C     SPECIFIED BY THE USER.
C
C                             INPUT SPECIFICATION
C
C     (1) JOB CARD
C     (2) JCL CARDS (START IN COL 1):
C         // (2000,1000),CLASS=C
C         //STEP EXEC PROC=FORTRUN,TIME.CMP=1,TIME.GO=1
C         //CMP.SYSIN DD *
C     (3) THIS PROGRAM
C     (4) JCL CARDS (START IN COL 1):
C         /*
C         //GO.FT07F001 DD SYSOUT=B
C         //GO.SYSIN DD *
C     (5) COL 1-4   PROB
C         COL 5-80  TITLE FOR THIS PROBLEM
C     (6) COL 1     NO. OF DATA CARDS PER CASE (LIMIT 10)
C         COL 2     NO. OF NON-STANDARD TRANSFORMATIONS TO BE SPECIFIED
C                   IN (7) BELOW.  LIMIT 8, MAY BE 0.
C     (7) IF NO NON-STANDARD TRANSFORMATIONS ARE SPECIFIED, SKIP TO (8).
C         OTHERWISE, INSERT ONE CARD FOR EACH NON-STANDARD
C         TRANSFORMATION, AS FOLLOWS.
C         COL 1-5   TRANS
C         COL 7     NO. OF THIS TRANSFORMATION. START AT 2 AND NUMBER
C                   CONSECUTIVELY, UP TO 9 IF NECESSARY.
C         COL 11-20 IN THESE COLUMNS, PUNCH THE CHARACTERS YOU WANT THE
C                   NUMERALS 1,2,3,4,5,6,7,8,9,0 TO BE CHANGED TO (IN
C                   THAT ORDER).
C         COL 21    CHARACTER YOU WANT BLANKS CHANGED TO
C         COL 22-47 CHARACTERS YOU WANT THE LETTERS A,B,C,...,Z TO BE
C                   CHANGED TO (IN ORDER)
C         (NOTE: IT IS ONLY NECESSARY TO PUNCH CHARACTERS IN THE COLUMNS
C         CORRESPONDING TO CHARACTERS WHICH ARE KNOWN TO OCCUR IN THE
C         DATA.  ANY OTHER STRAY CHARACTERS WILL BE BLANKED OUT.)
C     (8) PUNCH CARD(S) AS FOLLOWS.
C         CARD 1, COL 1   THE NUMBER OF THE TRANSFORMATION TO BE APPLIED
C                         TO COL 1 ON FIRST DATA CARD
C         CARD 1, COL 2   THE NUMBER OF THE TRANSFORMATION TO BE APPLIED
C                         TO COL 2 ON FIRST DATA CARD
C         ... AND SO ON.  CONTINUE ON FURTHER CARDS IF NECESSARY.  THE
C         NUMBER OF THESE CARDS MUST EQUAL THE NUMBER OF DATA CARDS
C         PER CASE.  FOR EXAMPLE, IF, WITH ONE CARD PER CASE, IT IS
C         REQUIRED TO COPY COL 1-10, APPLY TRANS 2 TO COL 11-20, AND
C         BLANK OUT EVERYTHING ELSE, INSERT HERE ONE CARD WITH 1'S IN
C         COL 1-10 AND 2'S IN COL 11-20.
C     (9) DATA CARDS, EQUAL NUMBER OF CARDS PER CASE
C    (10) INSERT HERE THE NUMBER OF CARDS PER CASE. ON EACH CARD, PUNCH
C         AN ASTERISK (*) IN COL 1.
```

```
C     (11) REPEAT STEPS (5)-(10) FOR ANY NUMBER OF PROBLEMS.
C     (12) COL 1-3    END
C          COL 4      (BLANK)
C     (13) JCL CARDS (START IN COL 1):
C          /*
C          //
C
C    OUTPUT IS PRINTED INPUT SUMMARY AND TOTAL NUMBER OF CASES
C    TRANSFORMED, AND THE TRANSFORMED DATA CARDS. GOOD LUCK.
C
      IMPLICIT INTEGER(A-Z)
      DIMENSION X(800), IMAGE(9,37), CHAR(37), TRANS(400), IDENT(19)
      DATA CHAR/'1','2','3','4','5','6','7','8','9','0',' ','A','B','C',
     1          'D','E','F','G','H','I','J','K','L','M','N','O','P','Q',
     2          'R','S','T','U','V','W','X','Y','Z'/
      DATA END/'END '/, FIN/'*'/
   99 READ 4, LABEL, IDENT
    4 FORMAT(20A4)
      IF(LABEL.EQ.END) GO TO 990
      COUNT = 0
      PRINT 100, IDENT
  100 FORMAT(1H1, 31X, 'ALPHAMERIC CHARACTER TRANSFORMATION (A.C.T.)'/
     1       1H0, 'PROGRAM PREPARED BY', 87X, 'LATEST'/
     2       1X, 'MICHAEL C. MITCHELMORE', 82X, 'REVISION'/
     3       1X, 'COLLEGE OF EDUCATION', 79X, 'JUNE 26, 1973'/
     4       1H0, 47X, 'INPUT SUMMARY'/1H0/1H0, 19A4/1H0/
     5       1H0, 'TRANSFORMATION 0  ...  ALL CHARACTERS BLANKED OUT'/
     6       1H0, 'TRANSFORMATION 1  ...  ALL CHARACTERS UNCHANGED')
      PUNCH 7, IDENT
    7 FORMAT(/19A4/)
      READ 10, NCARD, NTRANS
   10 FORMAT (2I1)
      IF (NTRANS.EQ.0) GO TO 40
      DO 30 I=1, NTRANS
      READ 20,J, (IMAGE (J,K),K=1,37)
   20 FORMAT (6X,I1,3X,37A1)
   30 CONTINUE
   40 NCOL=NCARD *80
      READ 45, (TRANS (J), J=1,NCOL)
   45 FORMAT(80I1)
   60 READ 50,(X(J),J=1,NCOL)
   50 FORMAT(80A1)
      IF (X(1). EQ. FIN) GO TO 900
      COUNT= COUNT +1
      DO 70 J=1,NCOL
      IF (TRANS(J).GT.1) GO TO 75
      IF (TRANS(J).EQ.1) GO TO 70
      X(J)=CHAR(11)
      GO TO 70
   75 DO 80 K=1,37
      IF (X(J).EQ. CHAR(K)) GO TO 90
   80 CONTINUE
   90 T=TRANS (J)
      X(J)=IMAGE(T,K)
   70 CONTINUE
      PUNCH 50,(X(J),J=1,NCOL)
      GO TO 60
  900 IF (NTRANS.EQ.0) GO TO 999
      NUM=1 + NTRANS
      DO 110 I=2, NUM
      PRINT 120,I, (IMAGE(I,K),K=1,37)
  120 FORMAT(1H0, 'TRANSFORMATION', I2, '  ...  CHARACTERS  ',
     1              '1234567890  BLANK  ABCDEFGHIJKLMNOPQRSTUVWXYZ'/
     2        24X, 'CHANGED TO  ', 10A1, 4X, A1, 4X, 26A1)
 110 CONTINUE
 999 PRINT 130, NCARD
 130 FORMAT(1H0/1H0, I1, ' DATA CARDS PER CASE'/
     1        1H0/1H0, 'COLUMNS TRANSFORMED ACCORDING TO FOLLOWING ',
     2              'SCHEDULE')
     START=1
     DO 140 I=1, NCARD
     FINISH= START+79
     PRINT 150, I, (TRANS(J), J=START, FINISH)
 150 FORMAT(1H0, 5X, 'CARD', I2, 8(2X, 10I1))
 140 START=START+80
     PRINT 160, COUNT
 160 FORMAT(1H0/1H0, I4, ' CASES TRANSFORMED')
     GO TO 99
 990 STOP
     END
```

APPENDIX L

SUBSCALE MEANS OF POSITIVE SCORES PROGRAM

```
C             SUBSCALE MEANS OF POSITIVE SCORES PROGRAM (S.M.O.P.S.)
C
C                       PREPARED BY MICHAEL C. MITCHELMRE,
C                        COLLEGE OF EDUCATION, JUNE 1972
C
C      THIS PROGRAM COMPUTES MEAN ITEM SCORES FOR UP TO 10 SUBSCALES,
C      OMITTING ITEMS SCORED ZERO.  INPUT SECIFICATION:
C
C      (1) JOB CARD
C      (2) JCL CARDS (START IN COL 1):
C          // (2000,1000),CLASS=C
C          //STEP EXEC PROC=FORTRUN,TIME.CMP=1,TIME.GO=1
C          //CMP.SYSIN DD *
C      (3) THIS PROGRAM
C      (4) JCL CARDS (START IN COL 1):
C          /*
C          //GO.FT07F001 DD SYSOUT=B
C          //GO.SYSIN DD *
C      (5) COL 1-4    PROB
C          COL 5-80   TITLE FOR THIS PROBLEM
C      (6) COL 1-3    TOTAL NO. OF ITEMS ON ALL SUBSCALES (LIMIT 120)
C          COL 5-6    NO. OF SUBSCALES (LIMIT 10)
C          COL 9      NO. OF DATA INPUT FORMAT CARDS (LIMIT 6)
C          COL 12     NO. OF OUTPUT FORMAT CARDS (LIMIT 2)
C      (7) CALL THE SUBSCALES 1,2,3,...,9.  IF A TENTH SUBSCALE IS
C          REQUIRED, CALL IT 0 (ZERO).  THEN PUNCH CARD(S) AS FOLLOWS.
C          COL 1      SUBSCALE FOR ITEM 1
C          COL 2      SUBSCALE FOR ITEM 2
C          ... AND SO ON.  CONTINUE UP TO COL 80 AND ONTO SECOND CARD IF
C          NECESSARY.  LIMIT 120 ITEMS.
C      (8) INPUT FORMAT, UP TO 6 CARDS.  FIRST INPUT MUST BE 16 COLUMNS OF
C          CASE IDENTIFICATION IN A2 FORMAT, THEN ITEMS IN I1 FORMAT.
C      (9) OUTPUT FORMAT FOR PUNCHED CARD OUTPUT.  ORDER IS 16 COLUMNS OF
C          CASE IDENTIFICATION, THEN, FOR EACH SUBSCALE, THE MEAN OF
C          POSITIVE SCORES AND THE NUMBER OF POSITIVE SCORES. THE CASE
C          IDENTIFICATION MUST BE REPEATED AFTER SUBSCALE 6 IF MORE THAN
C          SIX SUBSCALES ARE SPECIFIED.  EXAMPLES-
C          4 SUBSCALES: (8A2,2X,4(F7.4,I3),21X,'1')
C          7 SUBSCALES: (8A2,2X,6(F7.4,I3),1X,'1'/8A2,2X,F7.4,I3,51X,'2')
C     (10) DATA CARDS, EQUAL NUMBER OF CARDS PER CASE
C     (11) INSERT HERE THE NUMBER OF CARDS PER CASE. ON EACH CARD, PUNCH
C          TWO ASTERISKS (**) IN THE FIRST TWO CASE IDENTIFICATION COLS.
C     (12) REPEAT STEPS (5)-(11) FOR ANY NUMBER OF PROBLEMS.
C     (13) COL 1-3    END
C          COL 4      (BLANK)
C     (14) JCL CARDS (START IN COL 1):
C          /*
C          //
C
C    OUTPUT IS PRINTED (IN FIXED FORMAT) AS WELL AS PUNCHED ACCORDING TO
C    FORMAT SPECIFIED.  AN INPUT SUMMARY IS ALSO PRINTED.
C
      IMPLICIT INTEGER (A-Z)
      REAL TOTOT(10), TOTMAT(10), PROP(10)
      DIMENSION X(120), SCALE(120), CODE(8), IFMT(120), NUM(10)
      DIMENSION OFMT(40), IDENT(19), NIS(10), ITEM(10,20)
      DATA END/'**'/, FIN/'END '/
   70 READ 4, LABEL, IDENT
    4 FORMAT(20A4)
      IF(LABEL.EQ.FIN) GO TO 170
      PUNCH 7, IDENT
    7 FORMAT(/19A4/)
```

```
      READ 5, NITM, NSCL, NIFC, NOFC
    5 FORMAT(4I3)
      READ 10, (SCALE(K), K = 1, NITM)
   10 FORMAT(80I1/ 40I1)
      NI = NIFC * 20
      NO = NOFC * 20
      READ 15, (IFMT(K), K = 1, NI)
      READ 15, (OFMT(K), K = 1, NO)
   15 FORMAT(20A4)
      PRINT 6, IDENT, NITM, NSCL
    6 FORMAT(1H1, 37X, 'SUBSCALE MEANS OF POSITIVE SCORES (S.M.O.P.S.)'/
     1        1H0, 'PROGRAM PREPARED BY', 95X, 'LATEST'/
     2        1X, 'MICHAEL G. MITCHELMORE', 90X, 'REVISION'/
     3        1X, 'COLLEGE OF EDUCATION', 87X, 'JUNE 26, 1973'/
     4        1H0, 54X, 'INPUT SUMMARY'/1H0/1H0, 19A4/
     5        1H0, I3, ' ITEMS ON ', I2, ' SUBSCALES'/1H0)
      DO 20 K = 1, NSCL
   20 NIS(K) = 0
      DO 21 J = 1, NITM
      K = SCALE(J)
      IF(K.EQ.0) K = 10
      N = NIS(K) + 1
      ITEM(K, N) = J
   21 NIS(K) = N
      DO 22 J = 1, NSCL
      N = NIS(J)
      IF(N) 23, 23, 24
   23 PRINT 25, J
   25 FORMAT(1H0, 'NO ITEMS ON SUBSCALE', I3)
      GO TO 22
   24 PRINT 26, N, J, (ITEM(J,Z), Z = 1, N)
   26 FORMAT(1H0,I2, ' ITEMS ON SUBSCALE', I3, ':', I3, 19(',', I3))
   22 CONTINUE
      PRINT 27
   27 FORMAT(1H1)
   30 DO 41 J = 1, NSCL
      TOTOT(J) = 0.
   41 TOTMAT(J) = 0.
      READ IFMT, CODE, (X(J), J = 1, NITM)
      IF(CODE(1).EQ.END) GO TO 70
      DO 50 J = 1, NITM
      IF (X(J).EQ.0) GO TO 50
      K = SCALE(J)
      IF(K.EQ.0) K = 10
      TOTOT(K) = TOTOT(K) + X(J)
      TOTMAT(K) = TOTMAT(K) + 1.
   50 CONTINUE
      DO 101 Z = 1, NSCL
      NUM(Z) = TOTMAT(Z)
      IF(TOTMAT(Z)) 102, 102, 103
  102 PROP(Z) = -1.
      GO TO 101
  103 PROP(Z) = TOTOT(Z)/TOTMAT(Z)
  101 CONTINUE
      IF(NSCL.GT.6) GO TO 200
      PUNCH OFMT, CODE, (PROP(Z), NUM(Z), Z = 1, NSCL)
      PRINT 111, CODE,  (PROP(Z), NUM(Z), Z = 1, NSCL)
  111 FORMAT(1X, 8A2, 4X, 6(2X,F7.4, I3))
      GO TO 30
  200 PUNCH OFMT, CODE, (PROP(Z), NUM(Z), Z = 1, 6), CODE,
     1       (PROP(Z), NUM(Z), Z = 7, NSCL)
      PRINT 211, CODE, (PROP(Z), NUM(Z), Z = 1, NSCL)
  211 FORMAT(1X, 8A2, 2X, 10(F7.4, I3))
      GO TO 30
  170 STOP
      END
```

APPENDIX M

SATISFACTION PROGRAM

```
C                         SATISFACTION PROGRAM
C
C                  PREPARED BY MICHAEL C. MITCHELMORE,
C                   COLLEGE OF EDUCATION, JUNE 1973
C
C    THIS PROGRAM COMPARES STUDENT RESPONSES TO THE SAME TEST ON TWO
C    OCCASIONS, OR TO TWO TESTS MADE UP OF PARALLEL ITEMS.  THE TWO
C    RESPONSES TO EACH ITEM "MATCH" IF THEY DIFFER BY NO MORE THAN A
C    SPECIFIED NUMBER.  THE TOTAL NUMBER OF MATCHES AND THE PERCENTAGE
C    OF MATCHES IS THEN CALCULATED FOR UP TO 5 SUBSCALES AND FOR THE
C    TOTAL TEST, FOR EACH STUDENT AND FOR EACH CLASS.  ONE RESPONSE TO
C    THE FIRST TEST MAY BE SPECIFIED AS "IRRELEVANT"; ITEMS WITH THIS
C    RESPONSE WILL THEN BE OMITTED FROM THE CALCULATIONS FOR THAT
C    STUDENT.  RESPONSES MUST BE INPUT AS SINGLE DIGIT NUMBERS.
C
C                         INPUT SPECIFICATION
C
C    (1) JOB CARD
C    (2) JCL CARDS (START IN COL 1):
C        // (2000,1000),CLASS=C
C        //STEP EXEC PROC=FORTRUN,TIME.CMP=1,TIME.GO=1
C        //CMP.SYSIN DD *
C    (3) THIS PROGRAM
C    (4) JCL CARDS (START IN COL 1):
C        /*
C        //GO.FT07F001 DD SYSOUT=B
C        //GO.SYSIN DD *
C    (5) COL 1-3   NUMBER OF ITEMS ON EACH TEST (LIMIT 60)
C        COL 6     "IRRELEVANT" RESPONSE TO FIRST TEST
C        COL 9     MAXIMUM DIFFERENCE IN RESPONSES FOR A "MATCH" (CAN
C                  BE ZERO)
C        COL 12    NUMBER OF INPUT FORMAT CARDS (LIMIT 5)
C    (6) CALL THE SUBSCALES 1,2,3,4,5.  THEN PUNCH A CARD AS FOLLOWS.
C        COL 1     SUBSCALE FOR ITEM 1
C        COL 2     SUBSCALE FOR ITEM 2
C        ... AND SO ON.  LIMIT 60 ITEMS.  IF LESS THAN 5 SUBSCALES ARE
C        REQUIRED, UNUSED SUBSCALES WILL BE TREATED AS IF ALL ITEMS
C        ON THOSE SUBSCALES WERE IRRELEVANT.
C    (7) COL 1-8   FIRST HALF OF LABEL FOR SUBSCALE 1
C        COL 9-16  SECOND HALF OF LABEL FOR SUBSCALE 1
C        COL 17-24 FIRST HALF OF LABEL FOR SUBSCALE 2
C        COL 25-32 SECOND HALF OF LABEL FOR SUBSCALE 2
C        ... AND SO ON FOR 5 SUBSCALES. THE TWO HALVES OF EACH LABEL
C        WILL BE OUTPUT ONE BELOW THE OTHER.
C    (8) INPUT FORMAT, UP TO 5 CARDS.  FIRST INPUT MUST BE 16 COLUMNS
C        OF CASE IDENTIFICATION IN A2 FORMAT, THEN RESPONSES TO FIRST
C        TEST IN I1 FORMAT, THEN RESPONSES TO CORRESPONDING ITEMS ON
C        SECOND TEST IN I1 FORMAT, AND LASTLY A STUDENT NUMBER (3A1).
C    (9) COL 1-4   INST
C        COL 5-80  IDENTIFICATION OF THE SET OF STUDENTS WHOSE DATA
C                  CARDS ARE INCLUDED IN (10) BELOW, E.G. CLASS
C                  IDENTIFICATION CODE
C   (10) STUDENT DATA CARDS, THE SAME NUMBER FOR EACH STUDENT
C   (11) INSERT HERE THE NUMBER OF CARDS PER STUDENT. ON EACH CARD,
C        PUNCH TWO ASTERISKS (**) IN THE FIRST TWO CASE IDENTIFICATION
C        COLUMNS.
C   (12) REPEAT STEPS (9)-(11) FOR ANY NUMBER OF SETS OF STUDENTS.
C   (13) COL 1-3   END
C        COL 4     (BLANK)
C   (14) JCL CARDS (START IN COL 1):
C        /*
C        //
```

```
C
C     FOR EACH STUDENT, TWO CARDS ARE PUNCHED WITH THE FOLLOWING
C     INFORMATION: CASE IDENTIFICATION, STUDENT NUMBER, NUMBER OF MATCHES
C     AND NUMBER OF RELEVANT ITEMS FOR EACH SUBSCALE AND OVERALL: CASE
C     IDENTIFICATION REPEATED, THEN PERCENTAGE OF MATCHES FOR EACH
C     SUBSCALE AND OVERALL.  SIMILAR INFORMATION IS OUTPUT FOR EACH
C     SET OF STUDENTS.  OUTPUT IS PRINTED AS WELL AS PUNCHED, AND AN
C     INPUT SUMMARY IS ALSO PRINTED.
C
C
      IMPLICIT INTEGER (A-Z)
      REAL TOTOT(6), TOTMAT(6), PROP(6), FLT(3, 6)
      DIMENSION X(120),SCALE(60),INST(19),CODE(8),STUD(3),NAMES(4,10)
      DIMENSION FMT(100), TOT(6), MATCH(6), ITEM(5, 25), COUNT(5)
      DATA END/'END '/, FIN/'**'/, COUNT/5*0/
      READ 5, NUM, TWO, ONE, NFC
    5 FORMAT(4I3)
      READ 10,(SCALE(K),K=1,NUM)
   10 FORMAT (60I1)
      READ 16, NAMES
   16 FORMAT (40A2)
      N = NFC * 20
      READ 15, (FMT(J), J = 1, N)
   15 FORMAT(20A4)
      PRINT 6, NUM, TWO
    6 FORMAT(1H0, 50X, 'SATISFACTION PROGRAM'/
     1        1H0, 'PROGRAM PREPARED BY', 95X, 'LATEST'/
     2        1X, 'MICHAEL C. MITCHELMORE', 90X, 'REVISION'/
     3        1X, 'COLLEGE OF EDUCATION', 87X, 'JUNE 28, 1973'/
     4        1H0, 54X, 'INPUT SUMMARY'/1H0/1H0/
     5        1H0, 'NUMBER OF ITEMS ON IDEAL =', I3/
     6        1H0, 'IRRELEVANT CATEGORY IS #', I1/////)
      DO 1 J=1,NUM
      K=SCALE(J)
      C=COUNT(K)+1
      ITEM(K,C)=J
    1 COUNT(K)=C
      DO 301 J=1,5                                      :
      IF (COUNT(J)) 302,302,303
  302 PRINT 304, J
  304 FORMAT(1H0, 'NO ITEMS ON SUBSCALE', I2)
      GO TO 301
  303 C=COUNT(J)
      PRINT 305, C, J, (ITEM(J, K), K = 1, C)
  305 FORMAT(1H0, I2, ' ITEMS ON SUBSCALE', I2, ':', 20(I3, ','))
  301 CONTINUE
      PRINT 306,(FMT(J),J=1,N)
  306 FORMAT(1H0/1H0,'INPUT FORMAT:'//5(1X,20A4/))
   20 READ 30, ID, INST
   30 FORMAT(20A4)
      IF(ID.EQ.END) GO TO 40
      PRINT 31,INST,((NAMES(I,J),I=1,4),J=1,9,2),
     1               ((NAMES(I,J),I=1,3),J=1,9,2)
   31 FORMAT(1H1, 19A4///16X, 'STUDENT  ', 5(4A2, 1X), '  ALL    ',
     1       5(3A2,1X),'  ALL')
      PRINT 32,((NAMES(I,J),I=1,4),J=2,10,2),
     1           ((NAMES(I,J),I=1,3),J=2,10,2)
   32 FORMAT(17X,'NUMBER  ',5(4A2,1X),' ITEMS   ',
     1       5(3A2,1X),' ITEMS'/)
      PUNCH 35,INST,((NAMES(I,J),I=1,4),J=1,9,2)
   35 FORMAT(19A4//15X, 'STUDENT  ', 5(4A2, 1X), '  ALL')
      PUNCH 36,((NAMES(I,J),I=1,4),J=2,10,2)
  36  FORMAT(16X, 'NUMBER  ', 5(4A2,1X), ' ITEMS'/)
      LIM = NUM * 2
      DO 41 J=1,6
      TOTOT(J)=0.
  41  TOTMAT(J)=0.
  80  READ FMT,CODE,(X(J),J=1,LIM), STUD
      IF(CODE(1).EQ.FIN) GO TO 70
      DO 42 J=1,6
      TOT(J)=0
  42  MATCH(J)=0
      DO 50 J=1, NUM
      IF(X(J).EQ.TWO) GO TO 50
      K=SCALE(J)
      TOT(K)=TOT(K)+1
      IF(IABS(X(J)-X(J+NUM)).GT.ONE) GO TO 50
      MATCH(K)=MATCH(K)+1
  50  CONTINUE
      DO 90 Z=1,5
      TOT(6)=TOT(6)+TOT(Z)
  90  MATCH(6) = MATCH(6) + MATCH(Z)
      DO 95 Z=1,6
      FLT (1,Z)=TOT(Z)
      IF(FLT(1,Z)) 91,91,92
   91 FLT(3,Z) = 1000000000.
      GO TO 93
  92  FLT(2,Z)=MATCH(Z)
      FLT(3, Z) = FLT(2, Z) * 100. / FLT(1, Z)
  93  CONTINUE
      TOTOT(Z)=TOTOT(Z)+TOT(Z)
  95  TOTMAT(Z)=TOTMAT(Z)+MATCH(Z)
      PRINT 200,CODE,STUD,(MATCH(K),TOT(K),K=1,6),
    1        (FLT(3,Z), Z=1,6)
  200 FORMAT(1X,8A2,2X,3A1,6(I6,'/',I2),2X,6(1X,F6.2))
      PUNCH 100, CODE, STUD, (MATCH(K), TOT(K), K = 1, 6), CODE,
    1           (FLT(3, Z), Z = 1, 6)
  100 FORMAT(8A2, 2X, 3A1, 6(I6, '/', I2), 4X, '1'/8A2, 5X,
    1        6(3X, F6.2), 4X, '2')
      GO TO 80
  70  DO 101 Z=1,6
      IF  (TOTOT(Z))102,102,103
  102 PROP(Z) = 1000000000.
      GO TO 105
  103 PROP(Z) = TOTMAT(Z)/TOTOT(Z) * 100.
 105  TOT(Z)=TOTOT(Z)
 101  MATCH(Z)=TOTMAT(Z)
      PRINT 210, MATCH
      PRINT 220,TOT
      PRINT 230, PROP
  210 FORMAT(1X/1X, 'TOTAL MATCHES', 7X, 6I9)
  220 FORMAT(1X, 'TOTAL RELEVANT', 6X, 6I9/)
  230 FORMAT(1X, 'PERCENTAGE OF MATCHES', 6(3X, F6.2)//)
      PUNCH 110, MATCH
      PUNCH 120,TOT
      PUNCH 130, PROP
  110 FORMAT(/'TOTAL MATCHES', 7X, 6I9)
  120 FORMAT('TOTAL RELEVANT', 6X, 6I9/)
  130 FORMAT('PERCENTAGE OF MATCHES', 6(3X, F6.2)//)
      GO TO 20
  40  STOP
      END
```

APPENDIX N

EXAMPLE OF SATISFACTION PROGRAM OUTPUT

```
OUTPUT EXAMPLE 1

                     STUDENT   INTER-   PRESENT- CONSIDER  MOTIV-                ALL
                     NUMBER    ACTION   ATION    -ATION    ATION                 ITEMS

8392001                          4/ 7     9/10     4/ 6      3/ 4     0/ 0      20/27    5
8392001                        57.14    90.00    66.67     75.00    ******      74.07    6
8392002                          4/ 5     4/ 8     5/ 5      2/ 3     0/ 0      15/21    5
8392002                        80.00    50.00   100.00     66.67    ******      71.43    6
8392003                          3/ 3     7/10     2/ 5      2/ 3     0/ 0      14/21    5
8392003                       100.00    70.00    40.00     66.67    ******      66.67    6
8392005                          6/ 7    10/10     3/ 6      3/ 3     0/ 0      22/26    5
8392005                        85.71   100.00    50.00    100.00    ******      84.62    6
8392007                          6/ 7     9/10     5/ 6      3/ 4     0/ 0      23/27    5
8392007                        85.71    90.00    83.33     75.00    ******      85.19    6
8392008                          7/ 7    10/10     6/ 6      4/ 4     0/ 0      27/27    5
8392008                       100.00   100.00   100.00    100.00    ******     100.00    6
8392010                          2/ 2     7/ 8     4/ 5      2/ 3     0/ 0      15/18    5
8392010                       100.00    87.50    80.00     66.67    ******      83.33    6

TOTAL MATCHES                     32       56       29        19        0        136
TOTAL RELEVANT                    38       66       39        24        0        167

PERCENTAGE OF MATCHES          84.21    84.85    74.36     79.17    ******      81.44
```

```
OUTPUT EXAMPLE 2

                     STUDENT   INTER-   PRESENT- CONSIDER  MOTIV-                ALL
                     NUMBER    ACTION   ATION    -ATION    ATION                 ITEMS

8022001                          3/ 6     6/ 9     4/ 5      2/ 3     0/ 0      15/23    5
8022001                        50.00    66.67    80.00     66.67    ******      65.22    6
8022002                          5/ 5     8/10     5/ 6      3/ 3     0/ 0      21/24    5
8022002                       100.00    80.00    83.33    100.00    ******      87.50    6
8022003                          2/ 2     8/ 9     6/ 6      1/ 2     0/ 0      17/19    5
8022003                       100.00    88.89   100.00     50.00    ******      89.47    6
8022007                          4/ 4     5/10     6/ 6      3/ 4     0/ 0      18/24    5
8022007                       100.00    50.00   100.00     75.00    ******      75.00    6

TOTAL MATCHES                     14       27       21         9        0         71
TOTAL RELEVANT                    17       38       23        12        0         90

PERCENTAGE OF MATCHES          82.35    71.05    91.30     75.00    ******      78.89
```

```
OUTPUT EXAMPLE 3

                     STUDENT   INTER-   PRESENT- CONSIDER  MOTIV-               ALL
                     NUMBER    ACTION   ATION    -ATION    ATION                ITEMS

8292002                         3/ 3     10/10     4/ 5     4/ 4      0/ 0     21/22     5
8292002                       100.00    100.00    80.00   100.00    ******     95.45     6
8292003                         0/ 3     10/10     5/ 5     3/ 3      0/ 0     18/21     5
8292003                         0.0     100.00   100.00   100.00    ******     85.71     6
8292004                         3/ 3     10/10     4/ 5     4/ 4      0/ 0     21/22     5
8292004                       100.00    100.00    80.00   100.00    ******     95.45     6
8292005                         3/ 3      9/ 9     5/ 5     3/ 4      0/ 0     20/21     5
8292005                       100.00    100.00   100.00    75.00    ******     95.24     6
8292006                         2/ 6      6/ 7     3/ 5     0/ 3      0/ 0     11/21     5
8292006                        33.33     85.71    60.00     0.0     ******     52.38     6
8292007                         7/ 7      7/10     5/ 6     4/ 4      0/ 0     23/27     5
8292007                       100.00     70.00    83.33   100.00    ******     85.19     6
8292008                         6/ 7      8/10     5/ 6     3/ 4      0/ 0     22/27     5
8292008                        85.71     80.00    83.33    75.00    ******     81.48     6
8292009                         5/ 5     10/10     5/ 6     4/ 4      0/ 0     24/25     5
8292009                       100.00    100.00    83.33   100.00    ******     96.00     6
8292010                         1/ 1      8/ 9     3/ 5     2/ 3      0/ 0     14/18     5
8292010                       100.00     88.89    60.00    66.67    ******     77.78     6
8292011                         0/ 0     10/10     5/ 5     4/ 4      0/ 0     19/19     5
8292011                       ******    100.00   100.00   100.00    ******    100.00     6
8292012                         0/ 3      8/10     5/ 6     2/ 4      0/ 0     15/23     5
8292012                         0.0      80.00    83.33    50.00    ******     65.22     6
8292013                         6/ 7      9/10     5/ 6     4/ 4      0/ 0     24/27     5
8292013                        85.71     90.00    83.33   100.00    ******     88.89     6
8292014                         2/ 5      9/10     4/ 5     1/ 4      0/ 0     16/24     5
8292014                        40.00     90.00    80.00    25.00    ******     66.67     6
8292015                         2/ 2     10/10     5/ 6     3/ 4      0/ 0     20/22     5
8292015                       100.00    100.00    83.33    75.00    ******     90.91     6
8292017                         3/ 3     10/10     5/ 6     2/ 2      0/ 0     20/21     5
8292017                       100.00    100.00    83.33   100.00    ******     95.24     6
8292018                         2/ 3      6/ 8     4/ 5     3/ 3      0/ 0     15/19     5
8292018                        66.67     75.00    80.00   100.00    ******     78.95     6
8292020                         7/ 7      7/10     6/ 6     4/ 4      0/ 0     24/27     5
8292020                       100.00     70.00   100.00   100.00    ******     88.89     6
8292021                         5/ 7      8/10     2/ 6     3/ 4      0/ 0     18/27     5
8292021                        71.43     80.00    33.33    75.00    ******     66.67     6
8292022                         1/ 7      9/10     6/ 6     1/ 4      0/ 0     17/27     5
8292022                        14.29     90.00   100.00    25.00    ******     62.96     6

TOTAL MATCHES                    58       164       86       54         0       362
TOTAL RELEVANT                   82       183      105       70         0       440

PERCENTAGE OF MATCHES          70.73     89.62    81.90    77.14    ******     82.27
```

APPENDIX O

PROPOSED INSTRUCTOR OPINION QUESTIONNAIRE

Instructor Opinion Questionnaire

IDEAL INSTRUCTOR BEHAVIOR

Below is a list of items that could be used to describe the behavior of an instructor.

How important do you think each of these behaviors is in describing an ideal instructor for this course?

On the scoring sheet please fill in your name, sex, department or faculty, major (if applicable), and course subject and number.

Please use a pencil to respond to each item by blackening in the appropriate space on the scoring sheet. Use the following code: behavior which

A = is essential for an ideal instructor for this course
B = is very important
C = is fairly important
D = is undesirable
E = should always be avoided

If you do not blacken a space on the scoring sheet for a particular item, this is interpreted as "irrelevant behavior that does not make any difference one way or the other."

How an ideal instructor should behave toward students

An instructor should:

1. Make derogatory remarks about some students to the others.
2. Adapt class sessions to their difficulties and interests.
3. Show them that the topics being discussed are important.
4. Make clear his role in the class.
5. Expect them to take notes when he talks.

6. Ask them what topics they would like to cover.
7. Encourage them to spend extra time and effort on their work.
8. Inspire their confidence in his knowledge of the subject.
9. Be friendly and approachable.
10. Make exceptions for himself that he does not allow them.to make.
11. Encourage them to contribute their knowledge and experience.
12. Criticize them in a destructive way.
13. Arrange the room(s) so students can discuss together.
14. Emphasize seeing beyond the limits of the course.
15. Use effective teaching methods for this course.
16. Hesitate about taking a leadership role in the class.
17. Motivate them to do their best work.
18. Show favoritism to some students.
19. Make the work interesting for them.
20. Call them by their names.
21. Supplement the text from other sources (other texts, visual aids, etc.)
22. Be willing to learn with them.
23. Indicate where relevant information not dealt with in class can be found.
24. Encourage them to help each other outside of class hours.
25. Be willing to listen to suggestions they might make.
26. Let them know what he expects of them.
27. Provide them with informational feedback and encourage greater effort.
28. Encourage them to show initiative.
29. Praise some students to the others.
30. Settle conflicts if they arise in class.

31. Express appreciation when they do some good work.

32. Plan course objectives jointly with them.

33. Organize effective discussion groups.

34. Set aside class time for inter-student discussion.

35. Be fair in his grading.

36. Schedule the work so things get done at the right times.

37. Show enthusiasm for the subject.

38. Show them he is well organized.

39. Be able to answer their questions.

40. Make sure some students are not jealous of others.

41. Explain how the topics being discussed relate to the objectives of the course.

42. Let them work on projects and assignments together.

43. Be reluctant to change the course objectives.

44. Be considerate of their personal feelings.

45. Trust them.

46. Make them feel free to ask questions.

47. Want students to get along together.

48. Rearrange the work at short notice without asking them what they think.

49. Have adequate office hours for consultation and assistance.

50. Link course material to laboratory, clinical or field experiences.

51. Avoid individual contact with them.

52. Make it pleasant for them to be in class.

53. Present material so they can understand it.

54. Help them with their personal problems.

ACTUAL INSTRUCTOR BEHAVIOR

Now decide how frequently you act in the ways described below.

Blacken in the appropriate spaces on the scoring sheet according to the code:

A = Always

B = Often

C = Sometimes

D = Seldom

E = Never

How I behave toward my students

55. I make derogatory remarks about some students to the others.
56. I adapt class sessions to their difficulties and interests.
57. I show them that the topics being discussed are important.
58. I make clear my role in the class.
59. I expect them to take notes when I talk.
60. I ask them what topics they would like to cover.
61. I encourage them to spend extra time and effort on their work.
62. I inspire their confidence in my knowledge of the subject.
63. I am friendly and approachable.
64. I make exceptions for myself that I do not allow them to make.
65. I encourage them to contribute their knowledge and experience.
66. I criticize them in a destructive way.
67. I arrange the room(s) so students can discuss together.
68. I emphasize seeing beyond the limits of the course.
69. I use effective teaching methods for this course.

70. I hesitate about taking a leadership role in the class.

71. I motivate them to do their best work.

72. I show favoritism to some students.

73. I make the work interesting for them.

74. I call them by their names.

75. I supplement the text from other sources (other texts, visual aids, etc.)

76. I am willing to learn with them.

77. I indicate where relevant information not dealt with in class can be found.

78. I encourage them to help each other outside of class hours.

79. I am willing to listen to suggestions they might make.

80. I let them know what I expect of them.

81. I provide them with informational feedback and encourage greater effort.

82. I encourage them to show initiative.

83. I praise some students to the others.

84. I settle conflicts if they arise in class.

85. I express appreciation when they do some good work.

86. I plan course objectives jointly with them.

87. I organize effective discussion groups.

88. I set aside class time for inter-student discussion.

89. I am fair in my grading.

90. I schedule the work so things get done at the right times.

91. I show enthusiasm for the subject.

92. I show them I am well organized.

93. I am able to answer their questions.

94. I make sure some students are not jealous of others.

95. I explain how the topics being discussed relate to the objectives of the course.

96. I let them work on projects and assignments together.

97. I am reluctant to change the course objectives.

98. I am considerate of their personal feelings.

99. I trust them.

100. I make them feel free to ask questions.

101. I want students to get along together.

102. I rearrange the work at short notice without asking them what they think.

103. I have adequate office hours for consultation and assistance.

104. I link course material to laboratory, clinical or field experience.

105. I avoid individual contact with them.

106. I make it pleasant for them to be in class.

107. I present material so they can understand it.

108. I help them with their personal problems.

APPENDIX P

PROPOSED TEACHER BEHAVIOR DESCRIPTION QUESTIONNAIRE

(ELEMENTARY FORM)

Elementary Teacher Description Questionnaire

WHAT KIND OF TEACHER WOULD YOUR STUDENTS LIKE?

Note to Teachers:

These items are to be read aloud to a class of elementary school students. Ahead of time prepare a ditto sheet as shown below:

Teacher's Name ____________ Student's Name ____________

1.	Y N S	28.	55.	82.
2.	Y N S	29.	56.	83.
3.		30.	57.	84.
4.		31.	58.	85.
↓		↓	↓	↓
27.		54.	81.	108.

Fill in your name in the space provided before making enough copies for each student to have one. Ask them to fill in their names. (Preferably have another teacher read aloud the items to your class while you do her class.)

Read aloud each item in turn together with the item number. Ask the students to respond to each item by circling :

either, Y for "Yes, I'd like my teacher to be like that,"

or, N for "No, I wouldn't like my teacher to be like that,"

or, S for "I would sometimes like my teacher to be like that,"

depending upon how they feel the teacher ought to behave towards them.

You can give them some examples:

Would you like your teacher to make you laugh?

Would you like your teacher to shout at you?

Remind them of the alternatives and how they would write down a letter.

Now you are ready to begin. You can preface each item with "Would you like your teacher..." or you can just say it before every fifth item (as shown below). If you have to rephrase an item for students to understand it please write down what you said and send it in with the forms.

1. Would you like your teacher to say bad things about some of you to the others?
2. To change things so you are interested?
3. To show you why it is important to learn things?
4. To show you she is in charge?
5. To expect you to be quiet when she talks?
6. Would you like your teacher to ask you what you would like to do?
7. To want you to work harder than in the other classes?
8. To show you she is clever.
9. To be friendly to you?
10. To do things herself she doesn't let you do?
11. Would you like your teacher to ask you what you think about things?
12. To make you feel stupid?
13. To put the chairs so you can work together?
14. To show you how your work is useful?
15. To teach you the right way?
16. Would you like your teacher to let you make too much noise?
17. To want you to do your best work?
18. To like some of you more than the others?
19. To make the work fun?
20. To call you by your name?

21. Would you like your teacher to let you play lots of games?
22. To be willing to learn with you ?
23. To have lots of books for you to read?
24. To tell you to help each other?
25. To listen to your ideas?
26. Would you like your teacher to tell you how you should behave?
27. To want you to do better than you did before?
28. To let you work out some answers for yourself?
29. To tell you good things about each other?
30. To stop you if you are fighting?
31. Would you like your teacher to praise you when you do some good work?
32. To let you choose with her what to do?
33. To let you work in groups?
34. To give you some time when you talk to each other?
35. To be fair to you?
36. Would you like your teacher to divide the time so all the work gets done?
37. To let you do exciting things?
38. To do certain things on certain days?
39. To have things ready at the right times?
40. To make sure you are not jealous of each other?
41. Would you like your teacher to show you how everything fits together?
42. To let you work on projects together?
43. To tell you all the things you should do?
44. To be kind to you?
45. To believe what you say?
46. Would you like your teacher to like you to ask her questions?

47. To want you to get along together?

48. To break her promises to you?

49. To help you with your work?

50. To show you she knows about lots of things?

51. Would you like your teacher to stay at the front of the class?

52. To make you happy to be in her class?

53. To make things easy for you to understand?

54. To help you if you are unhappy?

____ ____ ____ ____ ____ ____ ____ ____

Note to Teachers:

At this stage you may collect the sheets from the students and give them out again later the same day, or the next day. Alternatively you can continue on to the second set of items. If you collect the forms, remind the students to write their names on the form.

Elementary Teacher Description Questionnaire

HOW DO YOUR STUDENTS SEE YOU?

Read aloud the items as before, but this time ask the students to reply to each item what they think the teacher actually does do. As you read the items ask the students to circle :

either, Y for "Yes, my teacher does that",
or, N for "No, my teacher doesn't do that",
or, S for "Sometimes my teacher does that",

depending upon how they feel the teacher does behave towards them. (As before try to have another teacher read the items to your class while you do her class).

You can give them some examples:

My teacher makes me laugh.

My teacher shouts at me.

55. My teacher says bad things about some of us to the others.
56. She changes things so I am interested.
57. She shows me why it is important to learn things.
58. She shows me she is in charge.
59. She expects me to be quiet when she talks.
60. My teacher asks me what I would like to do.
61. She wants us to work harder than in other classes.
62. She shows me she is clever.
63. She is friendly to me.
64. She does things herself she doesn't let me do.
65. My teacher asks me what I think about things.

66. She makes me feel stupid.

67. She puts chairs so we can work together.

68. She shows me how my work is useful.

69. She teaches me in the right way.

70. My teacher lets us make too much noise.

71. She wants me to do my best work.

72. She likes some children more than the others.

73. She makes the work fun for me.

74. She calls me by my name.

75. My teacher lets me play lots of games.

76. She is willing to learn with us.

77. She has lots of books for me to read.

78. She tells us to help each other.

79. She listens to my ideas.

80. My teacher tells me how I should behave.

81. She wants me to do better than I did before.

82. She lets me work out some answers for myself.

83. She tells us good things about each other.

84. She stops us if we are fighting.

85. My teacher praises me when I do some good work.

86. She lets me choose with her what to do.

87. She lets us work in groups.

88. She gives us some time when we talk to each other.

89. She is fair to me.

90. My teacher divides the time so all the work gets done.

91. She lets me do exciting things.

92. She lets us do certain things on certain days.

93. She has things ready at the right times.

94. She makes sure we are not jealous of each other.

95. My teacher shows me how everything fits together.

96. She lets us work on projects together.

97. She tells me all the things I should do.

98. She is kind to me.

99. She believes what I say.

100. My teacher likes me to ask her questions.

101. She wants us to get along together.

102. She breaks her promises to me.

103. She helps me with my work.

104. She shows me she knows about a lot of things.

105. My teacher stays at the front of the class.

106. She makes me happy to be in her class.

107. She makes things easy for me to understand.

108. She helps me if I am unhappy.

APPENDIX Q

PROPOSED TEACHER OPINION QUESTIONNAIRE

(ELEMENTARY FORM)

Teacher Opinion Questionnaire

IDEAL TEACHER BEHAVIOR

Below is a list of items that may be used to describe the behavior of a teacher.

How important do you think each of these behaviors is in describing an ideal school teacher for your grade(s)?

Respond to each item by blackening in the appropriate space on the scoring sheet (please use a pencil). On the sheet also write your name, class and grade. Use the code : behavior which

A = is essential for an ideal teacher for this class

B = is very important

C = is fairly important

D = is undesirable

E = should always be avoided

If you do not blacken a space on the score sheet this is interpreted as 'irrelevant behavior that does not make any difference one way or the other.'

How An Ideal Teacher Should Behave Toward Her Students

1. Say bad things about some of them to the others.
2. Change things so they are interested.
3. Show them why it is important to learn things.
4. Show them she is in charge.
5. Expect them to be quiet when she talks.

6. Ask them what they would like to do.
7. Want them to work harder than in the other classes.
8. Show them she is clever.
9. Be friendly to them.
10. Do things herself she doesn't let them do.
11. Ask them what they think about things.
12. Make them feel stupid.
13. Put the chairs so they can work together.
14. Show them how their work is useful.
15. Teach them in the right way.
16. Let them make too much noise.
17. Want them to do their best work.
18. Like some of them more than the others.
19. Make the work fun for them.
20. Call them by their names.
21. Let them play lots of games.
22. Be willing to learn with them.
23. Have lots of books for them to read.
24. Tell them to help each other.
25. Listen to their ideas.
26. Tell them how they should behave.
27. Want them to do better than they did before.
28. Let them work out some answers for themselves.
29. Tell them good things about each other.
30. Stop them if they are fighting.

31. Praise them when they do some good work.

32. Let them choose with her what to do.

33. Let them work in groups.

34. Give them some time when they talk to each other.

35. Be fair to them.

36. Divide the time so all the work gets done.

37. Let them do exciting things.

38. Let them do certain things on certain days.

39. Have things ready at the right times.

40. Make sure they are not jealous of each other.

41. Show them how everything fits together.

42. Let them work on projects together.

43. Tell them all the things they should do.

44. Be kind to them.

45. Believe what they say.

46. Like them to ask her questions.

47. Want them to get along together.

48. Break her promises to them.

49. Help them with their work.

50. Show them she knows about lots of things.

51. Stay at the front of the class.

52. Make them happy to be in her class.

53. Make things easy for them to understand.

54. Help them if they are unhappy.

ACTUAL TEACHER BEHAVIOR

Now decide how frequently you act in the ways described below.

Blacken in the appropriate spaces on the scoring sheet according to the code:

A = Always

B = Often

C = Sometimes

D = Seldom

E = Never

How I Behave Toward My Students

55. I say bad things about some of them to the others.

56. I change things so they are interested.

57. I show them why it is important to learn things.

58. I show them I am in charge.

59. I expect them to be quiet when I talk.

60. I ask them what they would like to do.

61. I want them to work harder than in other classes.

62. I show them I am clever.

63. I am friendly to them.

64. I do things myself I don't let them do.

65. I ask them what they think about things.

66. I make them feel stupid.

67. I put chairs so they can work together.

68. I show them how their work is useful.

69. I teach them in the right way.

70. I let them make too much noise.

71. I want them to do their best work.

72. I like some of them more than the others.

73. I make the work fun for them.

74. I call them by their names.

75. I let them play lots of games.

76. I am willing to learn with them.

77. I have lots of books for them to read.

78. I tell them to help each other.

79. I listen to their ideas.

80. I tell them how they should behave.

81. I want them to do better than they did before.

82. I let them work out some answers for themselves.

83. I tell them good things about each other.

84. I stop them if they are fighting.

85. I praise them when they do some good work.

86. I let them choose with me what to do.

87. I let them work in groups.

88. I give them some time when they talk to each other.

89. I am fair to them.

90. I divide the time so all the work gets done.

91. I let them do exciting things.

92. I let them do certain things on certain days.

93. I have things ready at the right times.

94. I make sure they are not jealous of each other.

95. I show them how everything fits together.
96. I let them work on projects together.
97. I tell them all the things they should do.
98. I am kind to them.
99. I believe what they say.
100. I like them to ask me questions.
101. I want them to get along together.
102. I break my promises to them.
103. I help them with their work.
104. I show them I know about lots of things.
105. I stay at the front of the class.
106. I make them happy to be in my class.
107. I make things easy for them to understand.
108. I help them if they are unhappy.

APPENDIX R

PROPOSED TEACHER BEHAVIOR DESCRIPTION QUESTIONNAIRE

(SECONDARY FORM)

HOW WOULD YOU LIKE YOUR TEACHER TO BEHAVE?

Below are some sentences that could describe the behavior of your teacher.

How important do you think each of these is in describing an ideal teacher for this grade and subject?

On the scoring sheet fill in your teacher's name, the grade and subject.

Use a pencil to respond to each item by blackening in a space on the scoring sheet. Please use the code : behavior which

A = is essential for an ideal teacher for this course
B = is very important
C = is fairly important
D = is undesirable
E = should always be avoided

If you do not blacken a space on the scoring sheet for a particular item this is interpreted as 'irrelevant behavior that doesn't make any difference one way or the other'.

A teacher should

1. Make derogatory remarks about some students to the others.
2. Adapt class sessions to our difficulties and interests.
3. Show me that the topics being discussed are important.
4. Show us he is in charge.
5. Expect me to listen when he talks.
6. Ask us what topics we would like to cover.
7. Encourage me to put extra effort into my work.
8. Show me he really understands what he is talking about.
9. Be friendly to me.
10. Make exceptions for himself that he doesn't allow me to make.
11. Encourage me to talk about my own experiences.
12. Criticize me in a destructive way.
13. Arrange the room so students can discuss things together.
14. Make us look beyond just what we are doing now.
15. Use effective teaching methods for this class.
16. Fail to keep control in class.
17. Make me want to do my best work.
18. Show favoritism to some students.
19. Make the work interesting for me.
20. Call me by my first name.
21. Use a lot of activities.
22. Be willing to learn with us.
23. Tell me where to go for more information.
24. Encourage us to help each other outside of class hours.
25. Be willing to listen to suggestions I might make.
26. Let me know what he expects of me.
27. Tell me how well I did and expect me to do better.
28. Let me work out some answers for myself.
29. Praise some students to the others.
30. Settle conflicts if they arise in class.
31. Praise me when I do some good work.
32. Plan the class objectives with us.
33. Let us work in groups.
34. Set aside class time for inter-student discussions.

35. Be fair in marking my work.
36. Schedule the work so things get done at the right times.
37. Show enthusiasm for the work.
38. Show us he is well organized.
39. Be able to answer my questions.
40. Make sure some students are not jealous of others.
41. Explain how the topics being discussed relate to the overall objectives.
42. Let us work on projects and assignments together.
43. Be reluctant to change the class objectives.
44. Be considerate of my personal feelings.
45. Trust me.
46. Make me feel free to ask questions.
47. Want us to get along together.
48. Rearrange the work at short notice without asking us what we think.
49. Have time to help us with our work.
50. Show us how the work relates to everyday life.
51. Avoid individual contact with students.
52. Make it pleasant for me to be in class.
53. Explain things so I can understand.
54. Help me with my personal problems.

HOW DOES YOUR TEACHER BEHAVE?

Please note : Your responses are confidential. Your teacher will only receive a summary of the responses of the whole class.

Decide how frequently your teacher does act in the ways described below.

Use a pencil to respond to each item as before. Use the code:
A = Always
B = Often
C = Sometimes
D = Seldom
E = Never

This teacher
55. Makes derogatory remarks about some students to the others.
56. Adapts class sessions to our difficulties and interests.
57. Shows me that the topics being discussed are important.
58. Shows us he is in charge.
59. Expects me to listen when he talks.
60. Asks us what topics we would like to cover.
61. Encourages me to put extra effort into my work.
62. Shows me he really understands what he is talking about.
63. Is friendly to me.
64. Makes exceptions for himself that he doesn't allow me to make.
65. Encourages me to talk about my own experiences.
66. Criticizes me in a destructive way.
67. Arranges the room so students can discuss things together.

68. Makes us look beyond just what we are doing now.
69. Uses effective teaching methods for this class.
70. Fails to keep control in class.
71. Makes me want to do my best work.
72. Shows favoritism to some students.
73. Makes the work interesting for me.
74. Calls me by my first name.
75. Uses a lot of activities.
76. Is willing to learn with us.
77. Tells me where to go for more information.
78. Encourages us to help each other outside of class hours.
79. Is willing to listen to suggestions I might make.
80. Lets me know what he expects of me.
81. Tells me how well I did and expects me to do better.
82. Lets me work out some answers for myself.
83. Praises some students to the others.
84. Settles conflicts if they arise in class.
85. Praises me when I do some good work.
86. Plans the class objectives with us.
87. Lets us work in groups.
88. Sets aside class time for inter-student discussions.
89. Is fair in marking my work.
90. Schedules the work so things get done at the right times.
91. Shows enthusiasm for the work.
92. Shows us she is well organized.
93. Is able to answer my questions.
94. Makes sure some students are not jealous of others.
95. Explains how the topics being discussed relate to the overall objectives.
96. Lets us work on projects and assignments together.
97. Is reluctant to change the class objectives.
98. Is considerate of my personal feelings.
99. Trusts me.
100. Makes me feel free to ask questions.
101. Wants us to get along together.
102. Rearranges the work at short notice without asking us what we think.
103. Has time to help us with our work.
104. Shows us how the work relates to everyday life.
105. Avoids individual contact with students.
106. Makes it pleasant for me to be in class.
107. Explains things so I can understand.
108. Helps me with my personal problems.

APPENDIX S

PROPOSED TEACHER OPINION QUESTIONNAIRE
(SECONDARY FORM)

Teacher Opinion Questionnaire

IDEAL TEACHER BEHAVIOR

Below is a list of items that may be used to describe the behavior of a teacher.

How important do you think each of these behaviors is in describing an ideal school teacher for your grade(s)?

On the scoring sheet fill in your name, school address, subject (if applicable), and grade(s) taught.

Please use a pencil to respond to each item by blackening in the appropriate space on the scoring sheet. Use the code : behavior which

A = is essential for an ideal teacher for this course

B = is very important

C = is fairly important

D = is undesirable

E = should always be avoided

If you do not blacken a space on the score sheet this is interpreted as irrelevant behavior that doesn't make any difference one way or the other.

How an ideal teacher should behave toward students

A teacher should:

1. Make derogatory remarks about some students to the others.
2. Adapt class sessions to their difficulties and interests.
3. Show them that the topics being discussed are important.
4. Show them she is in charge.
5. Expect them to listen when she talks.

6. Ask them what topics they would like to cover.
7. Encourage them to put extra effort into their work.
8. Show them she really understands what she is talking about.
9. Be friendly to them.
10. Make exceptions for herself that she doesn't allow them to make.
11. Encourage them to talk about their own experiences.
12. Criticize them in a destructive way.
13. Arrange the room so they can discuss things together.
14. Make them look beyond just what they are doing now.
15. Use effective teaching methods for that class.
16. Fail to keep control in class.
17. Make them want to do their best work.
18. Show favoritism to some students.
19. Make the work interesting for them.
20. Call them by their first names.
21. Use a lot of activities.
22. Be willing to learn with them.
23. Tell them where to go for more information.
24. Encourage them to help each other outside of class hours.
25. Be willing to listen to suggestions they might make.
26. Let them know what she expects of them.
27. Tell them how well they did and expect them to do better.
28. Let them work out some answers for themselves.
29. Praise some students to the others.
30. Settle conflicts if they arise in class.

31. Praise them when they do some good work.
32. Plan the class objectives with them.
33. Let them work in groups.
34. Set aside class time for inter-student discussions.
35. Be fair in marking their work.
36. Schedule the work so things get done at the right times.
37. Show enthusiasm for the work.
38. Show them she is well organized.
39. Be able to answer their questions.
40. Make sure some students are not jealous of others.
41. Explain how the topics being discussed relate to the overall objectives.
42. Let them work on projects and assignments together.
43. Be reluctant to change the class objectives.
44. Be considerate of their personal feelings.
45. Trust them.
46. Make them feel free to ask questions.
47. Want them to get along together.
48. Rearrange the work at short notice without asking them what they think.
49. Have time to help them with their work.
50. Show them how the work relates to everyday life.
51. Avoid individual contact with them.
52. Make it pleasant for them to be in class.
53. Explain things so they can understand.
54. Help them with their personal problems.

ACTUAL TEACHER BEHAVIOR

Now decide how frequently you act in the ways described below.

Blacken in the appropriate spaces on the scoring sheet according to the code:

A = Always

B = Often

C = Sometimes

D = Seldom

E = Never

How I behave toward my students

55. I make derogatory remarks about some of them to the others.

56. I adapt class sessions to their difficulties and interests.

57. I show them that the topics being discussed are important.

58. I show them I am in charge.

59. I expect them to listen when I talk.

60. I ask them what topics they would like to cover.

61. I encourage them to put extra effort into their work.

62. I show them I really understand what I am talking about.

63. I am frien[illegible] to them.

64. I make exceptions for myself that I don't allow them to make.

65. I encourage them to talk about their own experiences.

66. I criticize them in a destructive way.

67. I arrange the room so they can discuss things together.

68. I make them look beyond just what they are doing now.

69. I use effective teaching methods for this class.

70. I fail to keep control in class.

71. I make them want to do their best work.

72. I show favoritism to some of the students.

73. I make the work interesting for them.

74. I call them by their first names.

75. I use a lot of activities.

76. I am willing to learn with them.

77. I tell them where to go for more information.

78. I encourage them to help each other outside of class hours.

79. I am willing to listen to suggestions they might make.

80. I let them know what I expect of them.

81. I tell them how well they did and expect them to do better.

82. I let them work out some answers for themselves.

83. I praise some students to the others.

84. I settle conflicts if they arise in class.

85. I praise them when they do some good work.

86. I plan the class objectives with them.

87. I let them work in groups.

88. I set aside class time for inter-student discussions.

89. I am fair in marking their work.

90. I schedule the work so things get done at the right times.

91. I show enthusiasm for my work.

92. I show them I am well organized.

93. I am able to answer their questions.

94. I make sure some of the students are not jealous of others.

95. I explain how the topics being discussed relate to the overall objectives.
96. I let them work on projects and assignments together.
97. I am reluctant to change the class objectives.
98. I am considerate of their personal feelings.
99. I trust them.
100. I make them feel free to ask questions.
101. I want them to get along together.
102. I rearrange the work at short notice without asking them what they think.
103. I have time to help them with their work.
104. I show them how the work relates to everyday life.
105. I avoid individual contact with them.
106. I make it pleasant for them to be in class.
107. I explain things so they can understand.
108. I help them with their personal problems.

APPENDIX T

PROPOSED SUPERVISOR BEHAVIOR DESCRIPTION QUESTIONNAIRE

Supervisor Description Questionnaire

HOW WOULD YOU LIKE YOUR SUPERVISOR TO BEHAVE?

Below are some items that could be used to describe the behavior of your superior (a person in a supervisory position within the field of education).

Please note: He or she may be a Supervisor or Superintendent, a School Principal, a Department Chairman, a Dean or Associate Dean or a university supervisor of student teachers, etc. "Members" or "group members" in some of the items refer to you and the other members of the group who are supervised by the person you are going to describe.

How important do you think each of the following behaviors is in describing an ideal supervisor in this position?

On the scoring sheet please fill in your supervisor's name and title of supervisory position, your major (if applicable) and your sex. Please use a pencil to respond to each item by blackening in a space on the scoring sheet. Please use the code : behavior which

A = is essential behavior for an ideal supervisor in this position
B = is very important
C = is fairly important
D = is undesirable
E = should always be avoided

If you do not blacken a space on the scoring sheet for a particular item this is interpreted as "irrelevant behavior that doesn't make any difference one way or the other."

An ideal supervisor should

1. Make derogatory remarks about some members to the others.
2. Adapt the work to our difficulties and interests.
3. Show me that the work they are doing is important.
4. Make clear his role in the group.
5. Expect me to show respect when he talks.
6. Ask us what work we would like to do.
7. Encourage me to spend extra time and effort on my work.
8. Inspire my confidence in his expert knowledge.

9. Be friendly and approachable.
10. Make exceptions for himself that he doesn't allow me to make.
11. Encourage me to contribute my knowledge and experience.
12. Criticize me in a destructive way.
13. Arrange the working space so members can meet informally.
14. Emphasize seeing beyond the limits of the immediate job.
15. Use appropriate methods of working.
16. Hesitate about taking a leadership role in the group.

17. Motivate me to do my best work.
18. Show favoritism to some members.
19. Make the work interesting for me.
20. Treat me as his equal.
21. Help keep the work from becoming boring.
22. Be willing to learn with us.
23. Know where relevant information can be found.
24. Encourage us to help each other outside of working hours.

25. Be willing to listen to suggestions I might make.
26. Let me know what he expects of me.
27. Tell me how well I did and encourage me to do better.
28. Encourage me to show initiative.
29. Praise some members to the others.
30. Settle conflicts if they arise in the group.
31. Express appreciation when I do a good job.
32. Plan group goals jointly with us.

33. Organize effective discussion groups.
34. Set aside time for inter-member discussions.
35. Be fair in his assessment of my performance.
36. Schedule the work so things get done at the right times.
37. Show enthusiasm for the work being done.
38. Show us he is well organized.
39. Be able to answer my questions.
40. Make sure some members are not jealous of others.

41. Explain how the different aspects of the work fit together.
42. Keep us working together as a team.
43. Be reluctant to change the overall goals.
44. Be considerate of my personal feelings.
45. Trust me.
46. Make me feel free to ask questions.
47. Want members to get along together.
48. Change our assignments without first talking it over with us.

49. Have adequate office hours for consultation and assistance.
50. Link the work to the real situation.
51. Avoid individual contact with members.
52. Make it pleasant for me to be in the group.
53. Give directions that I can understand.
54. Help me with my personal problems.

HOW DOES YOUR SUPERVISOR BEHAVE?

Please note: Your responses are confidential. Your supervisor would only receive an overall summary.

Decide how frequently the supervisor does act in the ways described below.

Use a pencil to respond to each item as before. Please use the code:

A = Always

B = Often

C = Sometimes

D = Seldom

E = Never

This Supervisor

55. Makes derogatory remarks about some members to the others.
56. Adapts the work to our difficulties and interests.

57. Shows me that the work I am doing is important.
58. Makes clear his role in the group.
59. Expects me to show respect when he talks.
60. Asks us what work we would like to do.
61. Encourages me to spend extra time and effort on my work.
62. Inspires my confidence in his expert knowledge.
63. Is friendly and approachable.
64. Makes exceptions for himself that he doesn't allow me to make.

65. Encourages me to contribute my knowledge and experience.
66. Criticizes me in a destructive way.
67. Arranges the working space so members can meet informally.
68. Emphasizes seeing beyond the limits of the immediate job.
69. Uses appropriate methods of working.
70. Hesitates about taking a leadership role in the group.
71. Motivates me to do my best work.
72. Shows favoritism to some members.

73. Makes the work interesting for me.
74. Treats me as his equal.
75. Helps keep the work from becoming boring.
76. Is willing to learn with us.
77. Knows where relevant information can be found.
78. Encourages us to help each other outside of working hours.
79. Is willing to listen to suggestions I might make.
80. Lets me know what he expects of me.

81. Tells me how well I did and encourages me to do better.
82. Encourages me to show initiative.
83. Praises some members to the others.
84. Settles conflicts if they arise in the group.
85. Expresses appreciation when I do a good job.
86. Plans group goals jointly with us.
87. Organizes effective discussion groups.
88. Sets aside time for inter-member discussions.

89. Is fair in his assessment of my performance.
90. Schedules the work so things get done at the right times.
91. Shows enthusiasm for the work being done.
92. Shows us he is well organized.
93. Is able to answer my questions.
94. Makes sure some members are not jealous of others.
95. Explains how the different aspects of the work fit together.
96. Keeps us working together as a team.

97. Is reluctant to change the overall goals.
98. Is considerate of my personal feelings.
99. Trusts me.
100. Makes me feel free to ask questions.
101. Wants members to get along together.
102. Changes our assignments without first talking it over with us.
103. Has adequate office hours for consultation and assistance.
104. Links the work to the real situation.

105. Avoids individual contact with members.
106. Makes it pleasant for me to be in the group.
107. Gives directions that I can understand.
108. Helps me with my personal problems.

APPENDIX U

PROPOSED SUPERVISOR OPINION QUESTIONNAIRE

Supervisor Opinion Questionnaire

IDEAL SUPERVISOR BEHAVIOR

Below is a list of items that may be used to describe the behavior of a person in a supervisory position within the field of education.

Please note: He or she may be a Supervisor or Superintendent, a School Principal, a Department Chairman, a Dean or Associate Dean, or a university supervisor of student teachers, etc. "Members" or "group members" in some of the items refer to the people who work directly under the supervisor in the work situation.

How important do you think each of the following behaviors is in describing an ideal supervisor in the position in which you find yourself?

On the scoring sheet, fill in your name, sex, school or office address, department (if applicable), and title of supervisory position.

Please use a pencil to respond to each item by blackening in the appropriate space on the scoring sheet. Use the following code : behavior which

A = is essential for an ideal supervisor in your position
B = is very important
C = is fairly important
D = is undesirable
E = should always be avoided

If you do not blacken a space on the score sheet this is interpreted as "irrelevant behavior that does not make any difference one way or the other."

How an ideal supervisor should behave toward those who work under him

A supervisor should:

1. Make derogatory remarks about some members to the others.
2. Adapt the work to their difficulties and interests.
3. Show them that the work they are doing is important.
4. Make clear his role in the group.
5. Expect them to show respect when he talks.
6. Ask them what work they would like to do.
7. Encourage them to spend extra time and effort on their work.
8. Inspire their confidence in his expert knowledge.
9. Be friendly and approachable.
10. Make exceptions for himself that he does not allow them to make.
11. Encourage them to contribute their knowledge and experience.
12. Criticize them in a destructive way.
13. Arrange the working space so members can meet informally.
14. Emphasize seeing beyond the limits of the immediate job.
15. Use appropriate methods of working.
16. Hesitate about taking a leadership role in the group.
17. Motivate them to do their best work.
18. Show favoritism to some members.
19. Make the work interesting for them.
20. Treat them as his equals.
21. Help keep the work from becoming boring.
22. Be willing to learn with them.
23. Know where relevant information can be found.
24. Encourage members to help each other outside of working hours.
25. Be willing to listen to suggestions they might make.
26. Let them know what he expects of them.

27. Tell them how well they did and encourage them to do better.
28. Encourage them to show initiative.
29. Praise some members to the others.
30. Settle conflicts if they arise in the group.
31. Express appreciation when they do a good job.
32. Plan group goals jointly with them.
33. Organize effective discussion groups.
34. Set aside time for inter-member discussions.
35. Be fair in his assessment of their performance.
36. Schedule the work so things get done at the right times.
37. Show enthusiasm for the work being done.
38. Show them he is well organized.
39. Be able to answer their questions.
40. Make sure some members are not jealous of others.
41. Explain how the different aspects of the work fit together.
42. Keep them working together as a team.
43. Be reluctant to change the overall goals.
44. Be considerate of their personal feelings.
45. Trust them.
46. Make them feel free to ask questions.
47. Want members to get along together.
48. Change their assignments without first talking it over with them.
49. Have adequate office hours for consultation and assistance.
50. Link the work to the real situation.
51. Avoid individual contact with members.
52. Make it pleasant for them to be in the group.
53. Give directions that they can understand.
54. Help them with their personal problems.

ACTUAL SUPERVISOR BEHAVIOR

Now decide how frequently you act in the ways described below.

Blacken in the appropriate spaces on the scoring sheet according to the code:

A = Always

B = Often

C = Sometimes

D = Seldom

E = Never

How I behave toward those who work under me.

55. I make derogatory remarks about some members to the others.
56. I adapt the work to their difficulties and interests.
57. I show them that the work they are doing is important.
58. I make clear my role in the group.
59. I expect them to show respect when I talk.
60. I ask them what work they would like to do.
61. I encourage them to spend extra time and effort on their work.
62. I inspire their confidence in my expert knowledge.
63. I am friendly and approachable.
64. I make exceptions for myself that I do not allow them to make.
65. I encourage them to contribute their knowledge and experience.
66. I criticize them in a destructive way.
67. I arrange the working space so members can meet
68. I emphasize seeing beyond the limits of the immediate job.
69. I use appropriate methods of working.

70. I hesitate about taking a leadership role in the group.
71. I motivate them to do their best work.
72. I show favoritism to some members.
73. I make the work interesting for them.
74. I treat them as my equals.
75. I help keep the work from becoming boring.
76. I am willing to learn with them.
77. I know where relevant information can be found.
78. I encourage members to help each other outside of working hours.
79. I am willing to listen to suggestions they might make.
80. I let them know what I expect of them.
81. I tell them how well they did and encourage them to do better.
82. I encourage them to show initiate.
83. I praise some members to the others.
84. I settle conflicts if they arise in the group.
85. I express appreciation when they do a good job.
86. I plan group goals jointly with them.
87. I organize effective discussion groups.
88. I set aside time for inter-member discussions.
89. I am fair in my assessment.of their performance.
90. I schedule the work so things get done at the right times.
91. I show enthusiasm for the work being done.
92. I show them I am well organized.
93. I am able to answer their questions.
94. I make sure some members are not jealous of others.
95. I explain how the different aspects of the work fit together.

96. I keep them working together as a team.

97. I am reluctant to change the overall goals.

98. I am considerate of their personal feelings.

99. I trust them.

100. I make them feel free to ask questions.

101. I want members to get along together.

102. I change their assignments without first talking it over with them.

103. I have adequate office hours for consultation and assistance.

104. I link the work to the real situation.

105. I avoid individual contact with members.

106. I make it pleasant for them to be in the group.

107. I give directions that they can understand.

108. I help them with their personal problems.